

In the United States Court of Federal Claims

No. 13-552C

Filed: March 31, 2015

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RP1 FUEL CELL, LLC and UTS SJ-1,		*
LLC,		*
	Plaintiffs,	*
	v.	*
UNITED STATES,		*
	Defendant.	*
*****		*

American Recovery and
Reinvestment Tax Act; Section 1603;
Internal Revenue Code §§ 45, 48;
Fuel Cell Power Plant; Gas
Conditioning Equipment; Trash
Facility; Municipal Solid Waste.

Timothy L. Jacobs, Hunton & Williams LLP, for plaintiffs. With him were **David S. Lowman, Jr.**, and **Hilary B. Lefko**, Hunton & Williams LLP.

Michael J. Ronickher, Trial Attorney, Court of Federal Claims Section, Tax Division, United States Department of Justice, Washington, D.C., for defendant. With him were **Caroline D. Ciraolo**, Acting Assistant Attorney General, Tax Division, **David I. Pincus**, Chief, Court of Federal Claims Section, Tax Division, and **G. Robson Stewart**, Assistant Chief, Court of Federal Claims Section, Tax Division.

OPINION

HORN, J.

Plaintiffs RP1 Fuel Cell, LLC (RP1), and UTS SJ-1, LLC (SJ-1) have brought suit against the United States alleging they are entitled to “payment of the cash grant amounts mandated by section 1603 of the American Recovery and Reinvestment Tax Act of 2009,” Pub. L. No. 111-5, Div. B, tit. I, § 1603, 123 Stat. 115, 364–66 (2009) (ARRTA, § 1603, or Section 1603). Under the Section 1603 program, the Secretary of the Treasury, upon application, “shall, subject to the requirements of this section, provide a grant to each person who places in service specified energy property to reimburse such person for a portion of the expense of such property.” Section 1603(a). In plaintiffs’ case, the grant is equal to thirty percent of the allowed cost basis of the qualifying energy property. See Section 1603 (b)(2)(A). The parties have stipulated that “[t]he Section 1603 program is administered by the Office of the Fiscal Assistant Secretary at the Department of Treasury (‘Treasury’).”

Plaintiffs allege that they “placed in service two fuel cell power plants,” one by RP1, and the other by SJ-1, and that each of the plaintiffs “filed an application for a

grant for the eligible costs of constructing the Fuel Cells” pursuant to Section 1603. Plaintiffs allege that they included in the cost basis for the grants “the Fuel Cells and their associated gas conditioning equipment,”¹ but that the United States Department of the Treasury did not allow as part of the cost basis “all direct and indirect costs relating to the associated gas conditioning equipment.” Plaintiffs contend that the government “was required to make payment of the applied-for amounts to RP1 and SJ-1 because the associated gas conditioning equipment is ‘specified energy property’ under Section 1603,” and that including the gas conditioning equipment as part of the cost basis for the grant is “permitted under Section 1603, the Treasury Guidance, and the cost basis rules under the [Internal Revenue] Code.” Plaintiffs seek the amount of additional cash grant that they allege should have been awarded if the gas conditioning equipment had been included as part of the grant’s cost basis, \$1,515,020.00 between the two facilities,² as well as request that the decision by the Secretary of the Treasury be vacated.³

¹ The parties jointly define “[g]as conditioning equipment” to mean “[e]quipment used to clean, treat, and process contaminants (e.g., sulfur, hydrogen sulfide, VOC [volatile organic compounds], and siloxanes) from a fuel,” such as the biogas from an aerobic digester that is to be used as fuel for a fuel cell.

² The parties jointly stipulated that RP1 requested in its Section 1603 application “a payment of \$4,959,896 or 30 percent of SJ-1’s reported cost basis of \$16,532,985.” The parties also stipulated that, “[o]n January 14, 2013, Treasury issued a ‘Section 1603 Award Letter’ to RP1 in which it approved a payment of \$4,026,253 for the RP1 Project” based on a reduced basis amount of \$13,420,843. The parties further stipulated that SJ-1 “requested a payment of \$2,784,734 or 30 percent of its reported cost basis of \$9,282,447,” “voluntarily removed \$216,320” from its reported cost basis during Treasury’s review process, reducing it to \$9,066,127. Moreover, according to the parties’ stipulation, “[o]n March 1, 2013, Treasury issued a ‘Section 1603 Award Letter’ to SJ-1 in which it approved a payment of \$2,085,055 for the SJ-1 Project” based on a reduced basis amount of \$6,950,182.

³ The parties jointly stipulated that “[f]uel cells convert a fuel into electricity through an electrochemical process, without combustion. Fuel cells can operate on various fuels, including biogas, if the inherent contaminants are removed to meet the fuel cell manufacturer’s fuel specifications.” Throughout the trial and briefs, however, the parties refer to the various components and systems involved differently. Except when quoting from the parties, the court adopts the following terminology for purposes of this opinion:

- “Fuel cell,” “fuel cell stack,” or “fuel cell module” refers, as stipulated by the parties, to “the individual piece of equipment that actually performs the electrochemical conversion of the fuel into DC [direct current] electric power,” using an anode and a cathode. The parties state that the three terms are interchangeable, but also indicate that, alternatively, a “fuel cell stack” can refer to “[a] combination or ‘stack’ of individual fuel cells,” and a “fuel cell module” can refer to a set of “four separate fuel cell stacks and housing.” The terms “fuel cell,” “fuel cell stack,” or “fuel cell module” do not include the gas conditioning

FINDINGS OF FACT

According to the parties' joint stipulation, RP1 and SJ-1 are Delaware, limited liability companies with their principal places of business in California, and both are wholly-owned subsidiaries of UTS BioEnergy, LLC. The parties further stipulated that UTS BioEnergy is more than eighty-percent owned by Anaergia, a Canadian corporation "engaged in the generation of renewable energy from organic waste." Plaintiffs' witness, Arun Sharma, who, at the time of trial, testified he was "president of Anaergia North America," explained that Anaergia "is in the business of resource recovery. Our projects typically include recovery of renewable energy, water, nutrients, and fertilizer from waste streams." Regarding the RP1 and SJ-1 projects, Mr. Sharma stated he was "vice president of development at the time of the projects," in 2010 and 2011, but also indicated that he may have been promoted to "president of UTS BioEnergy," before completion of the projects. Mr. Sharma indicated that these projects were Anaergia's and UTS BioEnergy's first fuel cell projects. Mr. Sharma testified that Anaergia has performed a number of projects in the United States and abroad that create natural gas or electrical power from the digestion of organic waste, whether at a wastewater treatment facility or at another source of organic waste, such as a farm.

Mr. Sharma testified that Anaergia's interest in the fuel cell projects at issue developed because "they had some component of wastewater treatment where the digester gas was available and could be converted into electrical energy." Mr. Sharma further testified that the company's interest in these projects was because, "at the time, section 1603 grant and self-generation incentive program was available, and after discounting or reducing the project costs by that particular incentive, the projects penciled out very well for the municipality, and we were able to offer a low rate for electrical energy to the customers."⁴ According to Mr. Sharma, the RP1 and SJ-1

equipment at issue in this case, or any other items the parties generally referred to as "balance of plant," such as the natural gas desulfurizer, foundations, water treatment unit, and adjoining electrical equipment and piping.

- "Fuel cell assembly" refers to the set of "fuel cell equipment" supplied by FuelCell Energy and what the government admits is "balance of plant" for a fuel cell, such as the natural gas desulfurizer, foundations, water treatment unit, and adjoining electrical equipment and piping. "Fuel cell assembly" does not include the gas conditioning equipment at issue in this case.
- "Fuel cell facility" or "fuel cell project" refers broadly to all the equipment installed at either the RP1 or SJ-1 sites by plaintiffs, and includes the "fuel cell assembly" as well as the gas conditioning equipment at issue in this case.

⁴ Mr. Sharma testified at trial that outside of the Section 1603 grant, neither UTS BioEnergy nor Anaergia received other federal tax credits. The court notes that the parties sometimes refer to the Section 1603 grant as the "ITC grant," or Investment Tax Credit grant.

projects were infeasible without the “grants and incentives,” including incentives that Mr. Sharma understood covered the gas conditioning equipment. Mr. Sharma also testified that the projects using digester gas were of interest, because, while the digester gas was free, “it’s not economic to work on natural gas alone because then you have to pay for natural gas.”

The RP1 Fuel Cell Project

The parties have stipulated that the RP1 fuel cell system is located at the Ontario, California, Inland Empire Utilities Agency (or IEUA) Regional Plant No. 1, wastewater, treatment plant. The parties further stipulated that the Regional Plant No. 1 “collects and treats municipal wastewater and biosolids and supplies drinking water.” The parties further stipulated that the plant “includes anaerobic digesters, owned and operated by IEUA, that utilize microorganisms to break down the solids portion of the wastewater sludge.” According to the parties’ joint stipulation, “[t]hese digesters produce both ‘biosolids’ and ‘biogas,’ consisting of methane, other gaseous elements, and various contaminants. Biosolids are used to produce compost. Biogas may be discarded by burning it (in a process called ‘flaring’) or may be used as a fuel source.” According to the parties, prior to the installation of the RP1 fuel cell system, the biogas from Regional Plant No. 1 was used as a fuel source for “two 1.4 MW cogeneration engines.” The parties stipulated that “[d]ue to concerns with cost, reliability, and regulatory and environmental factors, IEUA desired to replace these engines with a fuel cell system.” Mr. Sharma testified at trial:

At the time, the Air Quality Management District, this[,] which is the South Coast Air Quality Management District, was not satisfied with the emissions profile [of the combustion engines] going forward, and they wanted them to have an alternative use for the gas or this fuel. And the only technology that was available to convert this fuel cleanly into electricity far better than internal combustion engine was fuel cell technology.

Mr. Sharma indicated at trial that the IEUA did not have “any interest in a fuel cell that would operate on natural gas alone.” A February 17, 2012 press release issued by IEUA, provided as a joint exhibit, stated that “IEUA is also adding fuel cells to its renewable energy portfolio. Installation of 2.8 megawatts powered by fuel cells operating on bio-gas and natural gas is underway and will be operational this spring.”

Mr. Sharma testified at trial that part of the financial incentive for the RP1 project came from the California Self-Generation Incentive Program (or SGIP). Mr. Sharma explained:

SGIP is called the Self-Generation Incentive Program, which is administered in the state of California by the utilities, and that is to promote cogeneration and fuel cell-type projects. And that basically provides a grant to make these projects happen.

And this grant was fairly significant for our projects. And it was included as part of the economics for the entire project to provide a rate of electricity to the customer that would be palatable and would be in line with what the customer would have to pay to the utility.

Mr. Sharma explained that, to be eligible for the Self-Generation Incentive Program grant, “at least 75 percent of the fuel has to be renewable fuel, like biogas, and 25 percent could be substituted with natural gas.” The June 25, 2012 “**Self-Generation Incentive Program Handbook**,” (emphasis in original), issued by the administrators⁵ of the Self-Generation Incentive Program, and provided as a joint exhibit, also explains that “[i]f it is determined that Directed Biogas Renewable Fuel deliveries fell below 75% of the generator’s fuel demand during any 1 year period within the warranty period, a refund of a portion of the incentive will be required.”

The request from IEUA for proposals for the Regional Plant No. 1 fuel cell project, which was submitted as a joint exhibit, stated: “[t]he purpose of the proposed fuel cell construction is to replace the current power generation system at RP1 [Regional Plant No. 1] and utilize digester gas as the primary fuel supply.” The request for proposal’s “**SCOPE OF WORK**,” (emphasis and capitalization in original), stated:

The Agency seeks a Vendor to provide turnkey engineering, design, materials, delivery, installation, testing, and commissioning of a cost-effective and energy efficient fuel cell system that will maximize the use of digester gas and increase the renewable energy resource potential at IEUA. The Vendor shall include in the proposed scope of work all necessary work, labor, taxes, services, equipment, appurtenances, and incidentals necessary to produce a fully functional and operational fuel cell system, including a fuel cleaning system for the available quality of digester gas, a heat recovery system for use by the Agency, and include the interconnection to the main utility service.

The request for proposals stated that “[a]ll proposals should be based upon the available digester gas and be designed to utilize 100% of this fuel supply without exceeding the SGIP limitations on natural gas.” Mr. Sharma testified that “[t]he requirement was that all the biogas that was available had to be used for the fuel cell, and if there was insufficient biogas available, then you could blend natural gas or use up to 25 percent natural gas.” The utility agency also asked vendors to include information on “[g]as cleaning system performance,” “[m]aintenance requirements and frequency of all major components including the gas cleaning system.” Mr. Sharma testified that the gas conditioning system was required by the IEUA and the Self-Generation Incentive Program as part of project. According to Mr. Sharma, “[t]hey were explicit about having

⁵ The administrators of the Self Generation Incentive Program included Pacific Gas and Electric, Southern California Edison, the Southern California Gas Company, and the California Center for Sustainable Energy.

the gas conditioning equipment at this plant, but by design, if the fuel was supposed to be biogas, the gas conditioning system de facto would have been part of the power plant.”

Mr. Sharma indicated at trial that the burden of supplying sufficient biogas for operation of the RP1 project lay with the IEUA, and that “[i]f Inland Empire fails to provide sufficient digester gas, they have to make up with natural gas.” The record indicates that the power purchase agreement for the RP1 project stated that “PURCHASER [IEUA] shall provide Seller [RP1], at no cost to Seller, the fuel required to operate the fuel cell at the maximum designed capacity of 2.8 MWac. The fuel will consist primarily of digester gas (a minimum annual average of 612,000 cft [cubic feet]/day).” (capitalization in original). The power purchase agreement further specified quality limits for the digester gas, for example, stating: “Purchaser agrees to control hydrogen sulfide at an annual average of 180 parts per million by volume.” Mr. Sharma also indicated, however, that assuming sufficient biogas was available, UTS BioEnergy was at risk if the gas conditioning equipment did not work: “[I]f the gas conditioning equipment is not available, then we track it separately and we pay for that fuel, we as RP1 or UTS pays for that fuel” The RP1 power purchase agreement states that the gas conditioning equipment for the project is to be able to operate, if needed, “at full load with 100% digester gas flow to the fuel cell (approximately 830,000 cft/day).” The record also states that “Seller [RP1] shall provide any necessary future gas cleaning system upgrades to meet the requirements of the fuel cell system at no cost to the Purchaser.”

It appears from the record that RP1 or its parent, UTS BioEnergy, submitted a successful bid and was awarded the contract for Regional Plant No. 1. Mr. Sharma explained at trial that “[t]here was an RFP [request for proposal] released by Inland Empire Utilities Agency, and UTS responded to that RFP. We were one of the many respondents. And we negotiated a power purchase agreement later with the utility.” Mr. Sharma added that “there was an interview. There were several interviews. There was a lot of negotiations, finally led to an award” Mr. Sharma also stated that there was no prior business relationship between the agency and UTS BioEnergy or Anaergia.

The record contains the “FUEL CELL POWER PURCHASE AGREEMENT,” (capitalization in original), between RP1 Fuel Cell, LLC, and the IEUA. The power purchase agreement was for a “fuel cell facility” consisting of a “Fuel Cell power plant and ancillary equipment, as further described in the body of this Agreement and Exhibit B and Exhibit D, providing a total gross electrical generating capacity of approximately 2.8 megawatts.” (emphasis in original). Exhibit B, “**FACILITY EQUIPMENT SPECIFICATIONS**,” discussed the fuel cell system’s technical requirements, including that of the “Gas Cleaning System.” (emphasis and capitalization in original). Under Exhibit D, Part B, “SCOPE OF WORK,” (capitalization in original), the following was included:

The Seller shall provide turnkey engineering, design, materials, delivery, installation, testing, commissioning, and operation and maintenance of a

cost-effective and energy efficient fuel cell system that will maximize the use of digester gas and increase the renewable energy resource potential at the delivery point. The Seller shall include in the scope of work all necessary work, labor, taxes, services, equipment, appurtenances, and incidentals necessary to produce a fully functional and operational 2.8 MWac fuel cell system, including a fuel cleaning system for the available quality of digester gas, 4.1 million BTH heat recovery system for use by the Purchaser, and include the interconnection to the main utility service.

Mr. Sharma testified that there was also an “[u]ptime requirement” for the RP1 project under the power purchase agreement, which is “a requirement so that the fuel cell is functioning some certain number of hours in a year.” Mr. Sharma explained that, according to his understanding, the uptime requirement was in place because “if the fuel cell equipment was not up and running, then this renewable fuel [the anaerobic digester biogas] would have to be flared.” Mr. Sharma indicated that the uptime requirement is in place regardless of whether the digester gas conditioning equipment was operational, and the RP1 project could run on natural gas in the interim, because the natural gas “runs through a different gas conditioning equipment,” discussed below as a fuel desulfurizer.

The parties also stipulated that, additionally, “RP1 and IEUA entered into a Fuel Cell Site Lease and Easement, dated October 1, 2010, providing for RP1’s lease of an area consisting of approximately four thousand (4,000) square feet on property owned by IEUA at its Regional Plant No. 1 for purposes of locating and operating the RP1 Project.” Mr. Sharma explained at trial that “typically when you have a service contract you also have a site lease or an easement where you have rights to access the site to build your power plant and service the contract.” A number of easement documents are also included in the record, such as an “Access easement,” and a “gas pipeline easement.”

A review of the record indicates that RP1 contracted with multiple other parties to complete construction of the fuel cell system. The parties stipulated that RP1 and HDR Design-Build, Inc. entered into a contract “with respect to the design and build of the RP1 Project.”⁶ Mr. Sharma stated at trial that HDR Design-Build, is “a large engineering and construction company that undertake [sic] tasks like that, and they’re very well-known in the wastewater treatment industry.” It appears that HDR Design Build did not actually manufacture the key components, but, instead, was responsible for unloading

⁶ The parties alternate between describing the contractor responsible for overseeing the overall project assembly as a “design-build” contractor, versus an engineering, procurement, and construction (EPC) contractor. Mr. Markell, defendant’s expert witness, testified as to his understanding of the difference between the two types of contractors: “The relevant difference is, in an EPC contract, the contractor usually does everything. They will design, buy and procure, and then build the plant. And in addition to that, typically they’ll provide what they call a wrap guarantee, so they’ll guarantee the entire project.”

and installing the “fuel cell module, water treatment, main process, exhaust stack, and fuel desulfurization skids,” as well as unloading the “PCU [power conditioning unit], Transformer, switchgear, heat exchanger, gas conditioning equipment and 1500 KVA load leveler,” among other tasks. The contract also indicates that HDR Design Build was to install the project’s piping and electrical equipment.

The parties stipulated that “RP1 and FuelCell Energy, Inc. (‘FuelCell Energy’) entered into a Sales Contract for Direct FuelCell (DFC) Power Plants, dated October 29, 2010, for RP1’s purchase of a 2.8 MW DFC-3000 fuel cell power plant from FuelCell Energy for the RP1 Project.” Plaintiffs’ witness, Anthony Leo, Vice President of applications and Advanced Technologies for FuelCell Energy, testified that “FuelCell Energy is in the business of manufacturing, developing, in some cases installing, servicing fuel cell power plants,” and that its “main commercial product line is a specific type of fuel cell called the molten carbonate fuel cell.” Mr. Leo testified that the sales contract was their standard form agreement. The sales contract, provided to the court as a joint exhibit, specified that the fuel cell would be a “carbonate-based fuel cell power plant utilizing Seller’s Direct FuelCell® technology.” An article in FuelCellToday about the RP1 project, also submitted as a joint exhibit, stated that the fuel cell built was of the “molten carbonate” type. The parties further stipulated that RP1 entered into a “Service Agreement for Direct FuelCell (DFC) Power Plants dated October 29, 2010, in connection with the RP1 Project,” with FuelCell Energy. Mr. Sharma testified at trial that FuelCell Energy was chosen because “FuelCell Energy makes the only large fuel cell that can work on biogas,” and also stated that “at that scale, they are the only manufacturer in -- actually globally.” Mr. Sharma testified at trial that the warranty provided by FuelCell Energy for its equipment only covered the equipment the company provided, and not the equipment supplied by other contractors, such as the gas conditioning equipment. Mr. Leo also indicated at trial that if the gas conditioning equipment failed and, therefore, incompatible fuel entered and damaged the fuel cell, UTS BioEnergy would have to pay for repairs to the fuel cell assembly, not FuelCell Energy. FuelCell Energy was not responsible for the operation of the gas conditioning equipment.

The parties stipulated that, for the gas conditioning equipment, “RP1 and ESC Corp. [Environmental Systems and Composites Corporation] entered into a UTS Equipment Purchase Agreement dated March 2, 2011, for the purchase by RP1 of a digester gas fuel conditioning system for the RP1 Project.” The scope of work for the purchase contract with ESC Corporation stated that “ESC Corporation is responsible for process design and Original Equipment Manufacturing procurement required for the ESC Digester Gas Fuel Conditioning System.” Mr. Sharma answered in the affirmative at trial that ESC Corporation was chosen “in part based on the fuel specifications from FuelCell Energy,” and stated that the equipment “was designed to meet the specification of the fuel that would enter the stack.” Sarwan Wason, plaintiffs’ expert witness, stated that: “There are two main suppliers, ESC and AFT,” and that “[t]hese two companies have provided gas conditioning equipment on all of our projects.”

The parties additionally stipulated that “[t]he heat recovery system for the RP1 Project was supplied by Cain Industries, pursuant to a contract with RP1.” As for other suppliers, Mr. Sharma stated at trial that “there was equipment supplied. Concrete and pipes and transformers and inverters, you know, were supplied by different contractors, and they were all integrated by HDR [Design-Build].” The parties stipulated that “[a]dditional property in the RP1 Project includes the concrete foundations⁷ for the equipment, mechanical piping and interconnection lines, a second transformer, a second switchgear, and electrical instrumentation provided by HDR [Design-Build].”

The parties dispute the specific commercial operation date of the RP1 project. According to the parties’ joint stipulation, “[t]he RP1 Project began commercial operations on September 11, 2012, utilizing natural gas to produce power for delivery to the IEUA grid and using the heat recovery system to capture excess heat from the fuel cell.” On November 9, 2012, according to the parties, “[t]he RP1 Project achieved the required 75% digester gas blend.”⁸ A November 9, 2012 letter from Joseph C. Fuller, Project Manager for FuelCell Energy, the supplier of the fuel cell, to Scott Warfield, Vice President of Operation for UTS BioEnergy, stated that “[d]ata has been collected showing that the Fuel Cell Power Plant was running at 76% anaerobic digester gas at 2800kW for one hour duration.” At trial, Mr. Sharma discussed his understanding of the “commercial operation date” within the power purchase agreement between RP1 and UTS BioEnergy. At trial, Mr. Sharma stated “the commercial operation date occurs when all the systems and subsystems of the entire power plant are running and functioning properly as intended. And that includes the gas conditioning equipment that would be required to clean the biogas as well. And the commercial operation date is the beginning of the term of the contract.”

Mr. Leo from FuelCell Energy testified at trial that FuelCell Energy was involved in commissioning⁹ the RP1 project. He stated that the commissioning process involves “the initial turn-on of all the various subsystems, the initial heat-up of the complete system, and the initial power ramp to full power.” Mr. Leo testified that “[i]f we provided the [gas conditioning] equipment, we would commission it at the same time. If it was provided by a third person, then that third person has to commission the equipment before we can commission our equipment.” Mr. Leo further testified that a third-party

⁷ The parties jointly explain that the terms “foundation,” “base,” “pad,” and “platform,” have “been used interchangeably in this case,” but all similarly refer to “a general description of the concrete floor structure of a facility or the underlying concrete structure for specific pieces of equipment,” upon which the pieces of equipment stand.

⁸ The RP1 power purchase agreement with the IEUA stated: “Seller [RP1] requires a regular minimum operating ratio of 75% digester gas and 25% natural gas.”

⁹ The parties switch between using the word and phrase “commissioning” and “placed in service” in their briefs and at trial. Donald Edward Settle, defendant’s witness and “senior project leader 4” at the National Renewable Energy Laboratory (NREL), indicated at trial that the two terms have interchangeable meanings, but “for tax purposes, ‘placed in service’ is the expression that’s used.”

gas conditioning equipment would have to be commissioned before the FuelCell Energy fuel cell could be commissioned: “The electrical connection is through us because it’s part of our balance of plant, so we have to at least be electrically all connected, and then they can commission it. And then when it’s up and running and making fuel, we can start our power ramp.” Mr. Leo affirmed at trial, however, that natural gas is “used to heat up and begin the process of generating electricity,” during commissioning. Mr. Leo testified that during the commissioning of the system the fuel cell “can be switched over to the digester gas anytime during the power ramp.” Mr. Leo also testified that the commissioning of the plants separately is done “just so that you can verify the dual-fuel operation,” but that they are separate commissioning events. Nonetheless according to Mr. Leo, “it’s all one commissioning from a commercial standpoint, but there are separate sort of subprocesses.” Mr. Leo further testified that the commissioning process by FuelCell Energy is structured, in part, for convenience concerns, and

is configured to operate with natural gas because that’s the fuel that we are most confident will be available when we need it, so for the initial heat-up, that’s why it’s configured for natural gas. It could be configured for digester gas, but it’s more common to configure it for natural gas.

Mr. Wason, plaintiffs’ expert witness also admitted that although the RP1 and SJ-1 projects started on natural gas “as a matter of practice,” the choice to start a fuel cell on natural gas or digester gas was not technical, but procedural in nature. Mr. Wason testified: “They have to test their equipment, okay, on digester gas as well as natural gas, so whether you first test on natural gas and then on digester gas or you first test on digester gas and then natural gas, it doesn’t make any difference” Mr. Wason indicated it was easier to test on natural gas because it is a simpler pipeline connection to FuelCell Energy’s fuel cell.

At trial, Mr. Sharma also discussed the monthly operations reports of the “fuel cell power plant.” The reports showed both “Fuel Cell Availability” and “DG [Digester Gas] Treatment Availability” as a percentage of operating time per month. Mr. Sharma explained that separate statistics were kept for both fuel cell assembly operation and gas conditioning equipment operation, because:

for the purpose of SGIP [Self-Generation Incentive Program] tracking, we are required to ensure that we run 75 percent on biogas and no more than 25 percent on natural gas. . . . Because of these two reasons, we are supposed to -- we have to track natural gas usage as well as the gas conditioning uptime and the fuel cell uptime separately.

Mr. Sharma testified that the reasons for tracking the statistics was not only to make sure the project was meeting the Self-Generation Incentive Program requirements, but also because “it’s your responsibility. If the gas conditioning system is down for some reason, then you have to pay for it.”

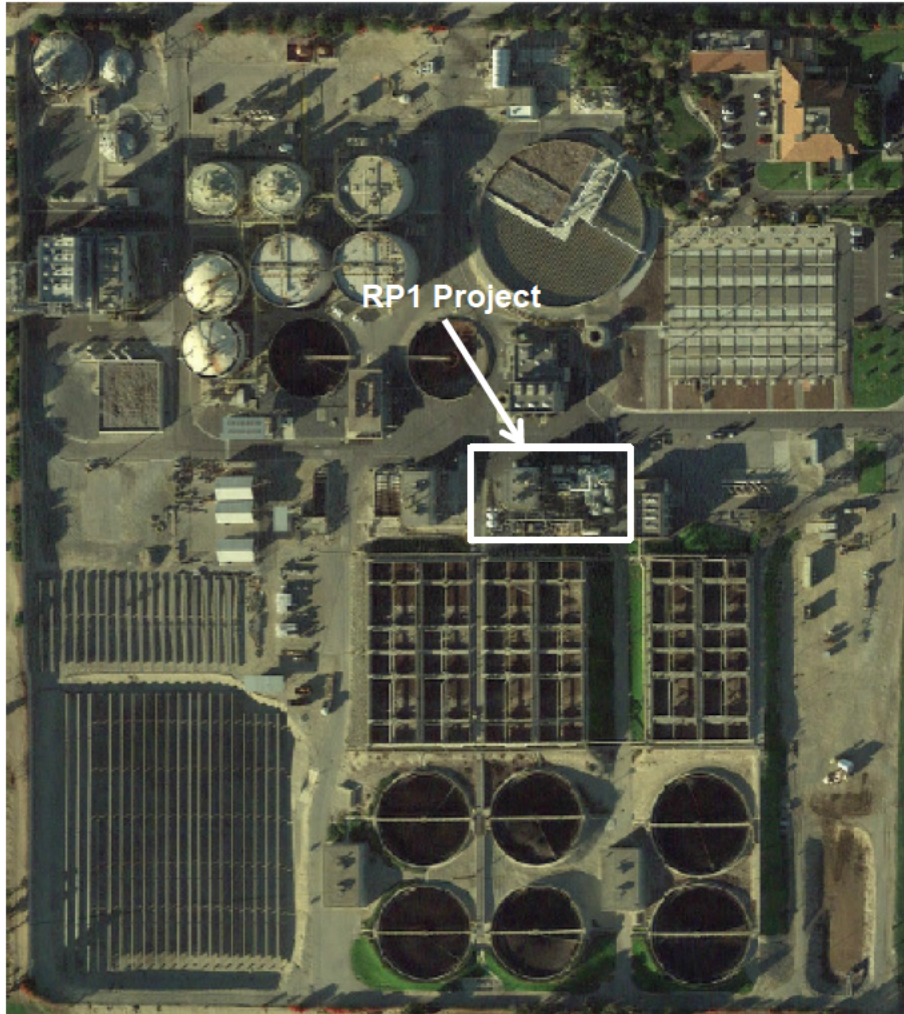
Contained in the record is a press release from the IEUA, dated October 15, 2012, which states in part:

A 2.8 megawatt fuel cell power plant, owned and operated by Anaergia Services – a division of Anaergia Inc. recently came on-line at the Inland Empire Utilities Agency's (IEUA) Water Recycling Plant located in Ontario California. Installation of the fuel cell plant assists IEUA with implementing its renewable energy program and removes a significant risk factor regarding compliance with any future changes to clean air regulations.

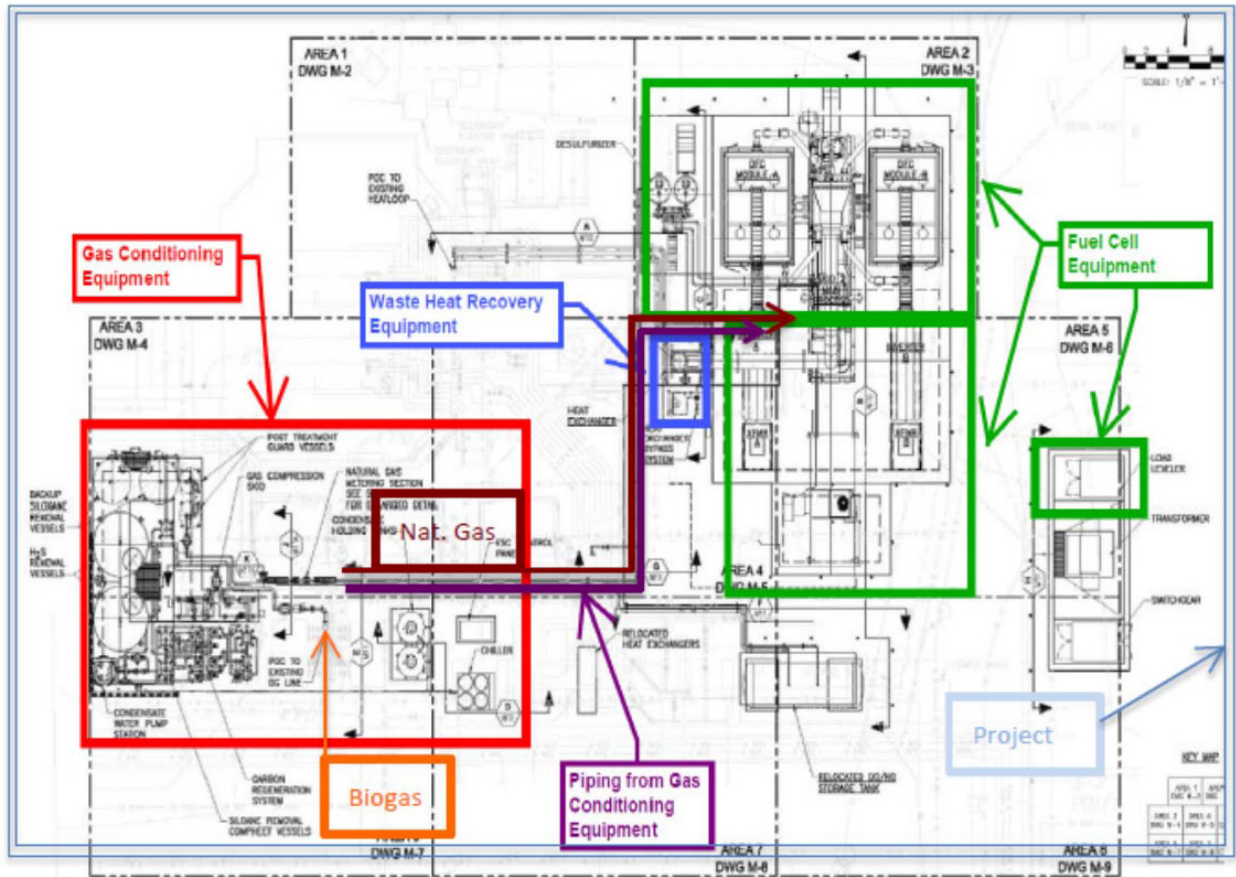
Digester gas has historically been used at IEUA's treatment plant to provide a fuel for cogeneration engines that provided energy to other processes within the facility. However, since regulatory requirements regarding power generation emissions continue to become more stringent, IEUA entered into a private-public partnership with Anaergia to efficiently convert the waste biogas into ultra-clean electricity.

A press release from FuelCell Energy, also submitted as a joint exhibit, noted that the RP1 fuel cell project was the "**LARGEST RENEWABLE BIOGAS FUEL CELL INSTALLATION** OPERATING IN THE USA," (emphasis in original), and that it "meets almost all of IEUA's baseload power needs at the Regional Plant 1," "assists IEUA with implementing its renewable energy program and removes a significant risk factor regarding compliance with any future changes to clean air regulations."

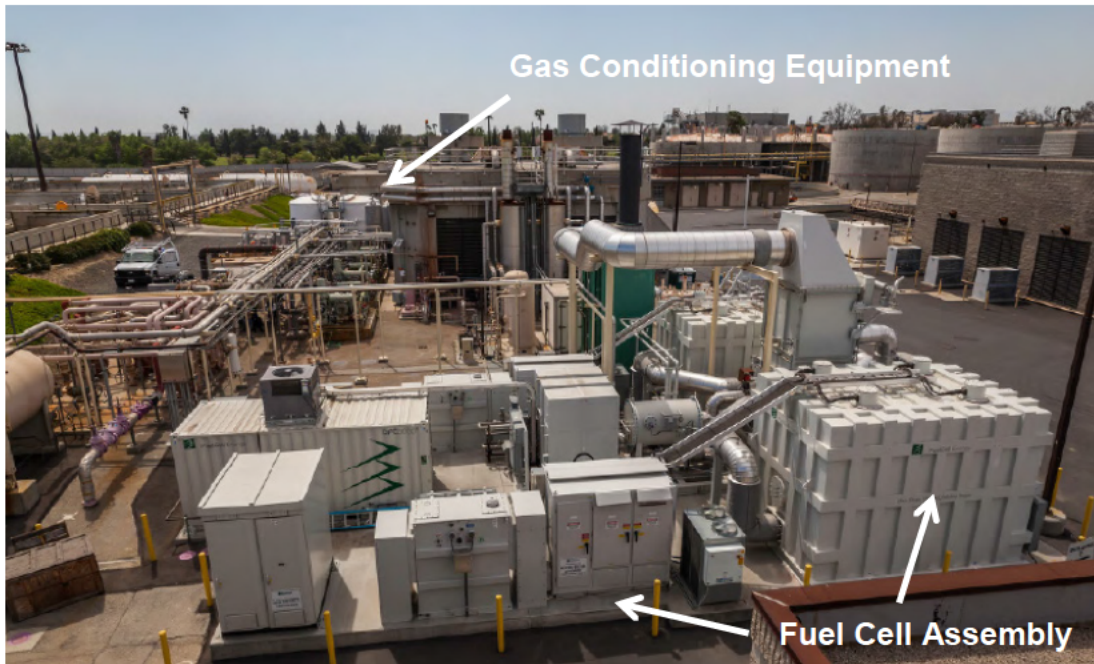
Below is an aerial picture of the RP1 project, provided as a joint exhibit containing both the fuel cell system and the gas conditioning equipment; as situated within the wastewater treatment plant area. The court has identified the location of the RP1 project within the picture:



(arrows provided by the court). Mr. Sharma affirmed at trial that the RP1 project was located “effectively right in the middle of the wastewater treatment plant.” The parties also jointly provided an engineering drawing of the RP1 project, with the various components identified by the parties:



Moreover, the parties provided a close-up picture of the RP1 project. Mr. Sharma explained at trial that the fuel cell assembly was in the foreground and the gas conditioning equipment in the background.



(arrows provided by the court). The parties did not specify in the record or at trial if the piping connecting the fuel cell assembly and gas conditioning equipment was part of one of the two components installed by FuelCell Energy or ESC Corporation, or a separate component assembled by a third party or the design-build contractor, HDR Design-Build.

Plaintiffs state that “RP1 incurred \$16,616,320 in total costs to construct the Fuel Cell,” although the breakdown of the costs has not been stipulated to by the parties. Based on a review of the record, including the sales contracts and internal RP1 accounting documents, the court has provided an estimated breakdown of the costs associated with the RP1 project:

RP1 Project Costs

Item	Estimated Cost
“Construction & Equipment” (from HDR Design-Build)	\$2,640,122.00
“Fuel Cell Equipment” (from FuelCell Energy)	\$8,944,489.00
“Gas Conditioning Equipment” (from ESC Corporation)	\$2,315,973.00 ¹⁰
“Other Equipment, Supplies & Materials” (primarily the Heat Recovery Unit from Cain Industries)	\$290,196.00
“Soft Costs” (primarily tax, interest, and labor)	\$2,425,540.00
TOTAL:	\$16,616,320.00

The SJ-1 Fuel Cell Project

The parties have stipulated that:

SJ-1 owns and operates 1.4 MW fuel cell facility consisting of a fuel cell power plant and ancillary equipment (the “SJ-1 Project”) located at the City of San Jose (“San Jose”) Water Pollution Control Plant (“WPCP”) in County of Santa Clara, California. . . . San Jose’s WPCP collects and treats wastewater and biosolids from domestic, commercial, and industrial sources.

The court notes that the basic facts behind the installation of the RP1 and SJ-1 projects are largely similar. Mr. Sharma testified that, compared to the RP1 project, “[t]here are subtle differences, but they’re very similar.” He explained that, primarily, “SJ-1 is about half the size of RP1.” The parties also stipulated that, as with the IEUA facility, “San Jose’s WPCP also includes anaerobic digesters, owned and operated by San Jose, which produce biosolids and biogas from the processing of WPCP’s wastewater sludge.” According to the parties:

Prior to the installation of the SJ-1 Project, this biogas was used, along with purchased natural gas and landfill gas, to fuel on-site engine generators that produced an average of 5.2 MW of electricity. When the

¹⁰ Plaintiffs also state in their complaint that the “direct costs of the gas conditioning equipment were \$2,315,973 and the indirect costs included a pro rata portion (approximately 21 percent) of the build-design contract costs, sales taxes, and other costs.”

generators needed to be replaced due to age, San Jose decided to replace them with a fuel cell system.

As stipulated to by the parties, “San Jose issued a ‘Request for Proposal,’ RFP 09-10-32, Power Purchase & Site Lease Agreement for Fuel Cell Power Production System, dated June 29, 2010, for the purchase of electricity from a fuel cell system to be constructed, owned, and operated by the successful party.” The request for proposals for the San Jose Water Pollution Control Plant fuel cell system was provided as a joint exhibit. The request for proposals stated under “**BACKGROUND INFORMATION**” that pursuant to the California Energy Commission Self Generation Incentive Program, “the Water Pollution Control Plant (WPCP) has been approved for an amount to be determined for Fuel Cell Power generation of 2.8 MW. [San Jose] City intends to take this unique opportunity to move WPCP towards higher efficiency and achieving a renewable energy goal of 100 percent.” (capitalization and emphasis in original). The request for proposals also stated that “[t]his project is a part of the City’s ‘Green Vision’” and “a part of [San Jose Water Pollution Control] Plant’s goal of achieving overall higher energy efficiency and 20% reduction of energy consumption by the end of year 2012.”

According to Mr. Sharma, although the RP1 project required only 75% biogas and could run on 25% natural gas, the San Jose request for proposals preferred that the SJ-1 fuel cell facility operate 100% on anaerobic digester biogas. Mr. Sharma testified at trial that this increased minimum biogas use requirement was possible because “in this case, they [San Jose] had sufficient biogas fuel to supply hundred percent for this biogas power plant, so the 75/25 question did not arise at that point in time.” Under the San Jose request for proposals’ “**SCOPE OF SERVICES**,” (capitalization and emphasis in original), the contract awardee would be required to “provide all materials and equipment including the digester gas clean-up skid,¹¹ to condition the methane gas for use, labor, including consumables except listed under City Responsibilities, required for maintenance and operation of the Fuel Cell System Power Plant on a seven (7) day a week, twenty four hour (24) per day basis” The request for proposals also stated that the plant was “to be operated on plant digester gas, with the resulting electrical output to be sold to the City for an agreement term of 20 years. All the generated electrical power will only be used onsite.”

As with the RP1 project, it appears that SJ-1, or its parent UTS BioEnergy, submitted a successful bid and was awarded the San Jose fuel cell system contract.¹²

¹¹ The parties define “[s]kid or skid-mounted” as “[p]re-fabricated, assembled, and mounted equipment delivered to the project site as one unit.”

¹² Mr. Sharma indicated at trial:

So City of San Jose actually had gone through multiple RFP processes, or they had issued the RFP a few times before the final RFP was issued which UTS bid on and succeeded. But prior to that, UTS had had some conversations with the City of San Jose wastewater treatment plant in

Mr. Sharma testified at trial that the agreements involved in constructing the SJ-1 fuel cell facility were “materially similar” to the agreements involved in constructing the RP1 facility, except for the requirement to operate on 100% biogas. The parties stipulated that “SJ-1 and San Jose entered into a Power Purchase Agreement, dated October 27, 2010, providing for the sale to San Jose of the electricity generated by the SJ-1 Project,” and that “SJ-1 and San Jose entered into a Fuel Cell Services Site Lease Agreement, dated November 11, 2010, providing for SJ-1’s lease of an area on property owned by San Jose at its WPCP for purposes of locating and operating the SJ-1 Project.”

The power purchase agreement required SJ-1 to provide and install all the equipment for the project, including the gas conditioning equipment. The power purchase agreement on the first page stated that “**WHEREAS**, Customer [San Jose] desires that Provider [SJ-1] install, maintain, operate and own and Provider desires to install, maintain, operate and own Systems (as hereinafter defined) to be located on the Sites” Later in the power purchase agreement, “Systems” was defined to “mean each of the fuel cell systems installed pursuant to this Agreement at the Site and more fully described in Exhibit B hereto; provided, however, that the term Systems shall only include equipment and materials up to but not including the Interconnection Point of any such System.” (emphasis in original).¹³ Under Exhibit B, “**SPECIAL CONSTRUCTION PROVISIONS**,” the term “System” was not further defined, but in “**GENERAL DESIGN CRITERIA**,” it was stated: “The Fuel Cell System shall be fed digester gas. The Fuel Cell System shall include fuel conditioning and cleaning system.” (capitalization and emphasis in original). Moreover, the power purchase agreement’s Exhibit F, “**SCOPE OF SERVICES**,” as in the request for proposals, also stated that the contractor, SJ-1, would be responsible for all project materials, “including the digester gas clean-up skid, to condition the methane gas for use.” Mr. Sharma explained that the SJ-1 contract also specified that the purchaser of the power, San Jose, was to provide the biogas “for free. And if biogas was not available, then the city was obligated to providing us natural gas for that period.” As opposed to the RP1 project, which was to operate with some natural gas always, for the SJ-1 project, Mr. Wason, plaintiffs’ expert, testified that “SJ-1 is not designed to run on natural gas for any length of time because of the limitation of the contract between Anaergia and City of San Jose. . . . it’s only for emergencies when you can run on natural gas for the San Jose plant.”

It appears from the record that SJ-1, like RP1, contracted with many different entities to build the fuel cell system. The parties stipulated that “SJ-1 and Otto H. Rosentreter Co. entered into a Design-Build Contract, dated January 17, 2011, with respect to the design and build of the SJ-1 Project at WPCP. Otto H. Rosentreter Co. retained Carollo Engineers, Inc. (‘Carollo’), to provide design and engineering services

terms of what essential elements should be present in an RFP for that to be successful, so even before the RFP was issued, there were some communications between UTS and City of San Jose.

¹³ Mr. Sharma testified at trial that “systems” in the SJ-1 power purchase agreement was defined similarly to “facility” in the RP1 power purchase agreement.

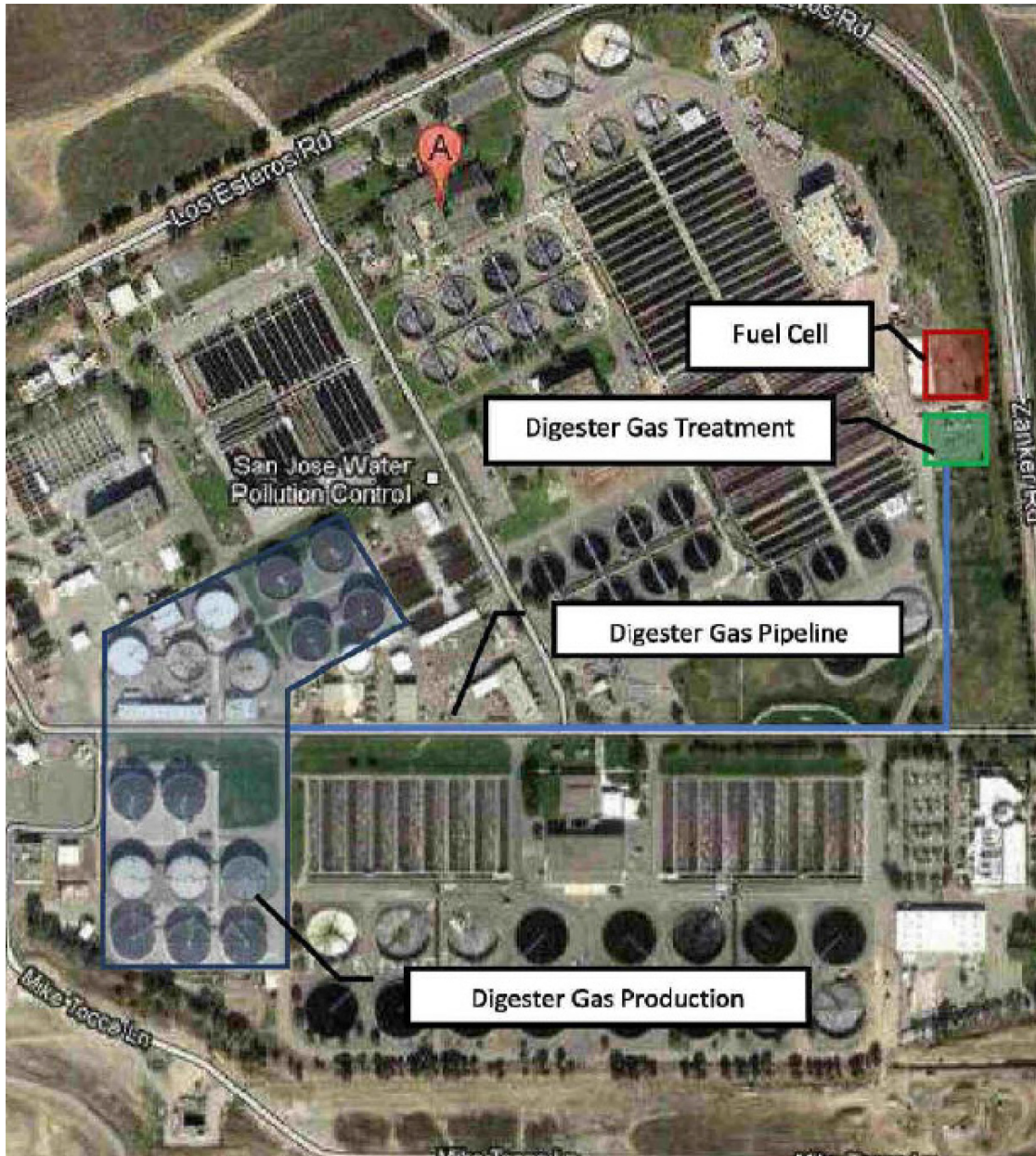
for the SJ-1 Project under the Design-Build Contract.” From a review of the design-build contract contained in the record as a joint exhibit, Otto H. Rosentreter was to be responsible for installation and maintenance services, including unloading and installation of the “fuel cell module, water treatment, main process, exhaust stack, and fuel desulfurization skids,” unloading of the “PCU, Transformer, switchgear, heat exchanger, gas conditioning equipment and 1500 KVA load leveler,” and installation of the electrical and piping work. Mr. Sharma testified that O.H. Rosentreter was responsible for integrating the various components, similar in nature to the work performed by HDR Design-Build for the RP1 project.

The parties stipulated that, as with the RP1 project, “SJ-1 and FuelCell Energy entered into a Sales Contract for Direct FuelCell (DFC) Power Plants dated October 29, 2010, for SJ-1’s purchase of a 1.4 MW DFC-1500B fuel cell power plant from FuelCell Energy for the SJ-1 Project.” The sales contract, provided as a joint exhibit, specified that the fuel cell would be a “carbonate-based fuel cell power plant utilizing Service Provider’s Direct FuelCell® technology.” The parties also stipulated that “SJ-1 and FuelCell Energy entered into a Service Agreement for Direct FuelCell (DFC) Power Plants dated October 29, 2010, in connection with the SJ-1 Project.” Plaintiffs’ witness, Mr. Leo, indicated at trial that the sales and service contracts between the RP1 and SJ-1 contracts were “essentially the same” and both were based on a “standard form” sales and service contract template. Regarding the gas conditioning equipment, the parties stipulated that “SJ-1 and ESC Corp. entered into a UTS Equipment Purchase Agreement dated February 11, 2011, for the purchase by SJ-1 of a digester gas fuel conditioning system for the SJ-1 Project.” The “**SCOPE OF WORK**,” (capitalization and emphasis in original), in the gas conditioning equipment purchase contract, submitted as a joint exhibit, stated that the “Supplier [ESC] is responsible for process design and Original Equipment Manufacturing procurement required for the ESC Digester Gas Fuel Conditioning System.” Finally, the parties also stipulated that “[t]he heat recovery system for the SJ-1 Project was supplied by Cain Industries, pursuant to a contract with the design-builder Otto H. Rosentreter Co.” Although the suppliers for the fuel cell assembly, gas conditioning equipment, and heat recovery unit were the same between the RP1 and SJ-1 projects, Mr. Sharma testified at trial that the “suppliers for nuts, bolts, fittings, pipes, transformers, switchgears might have been different.”

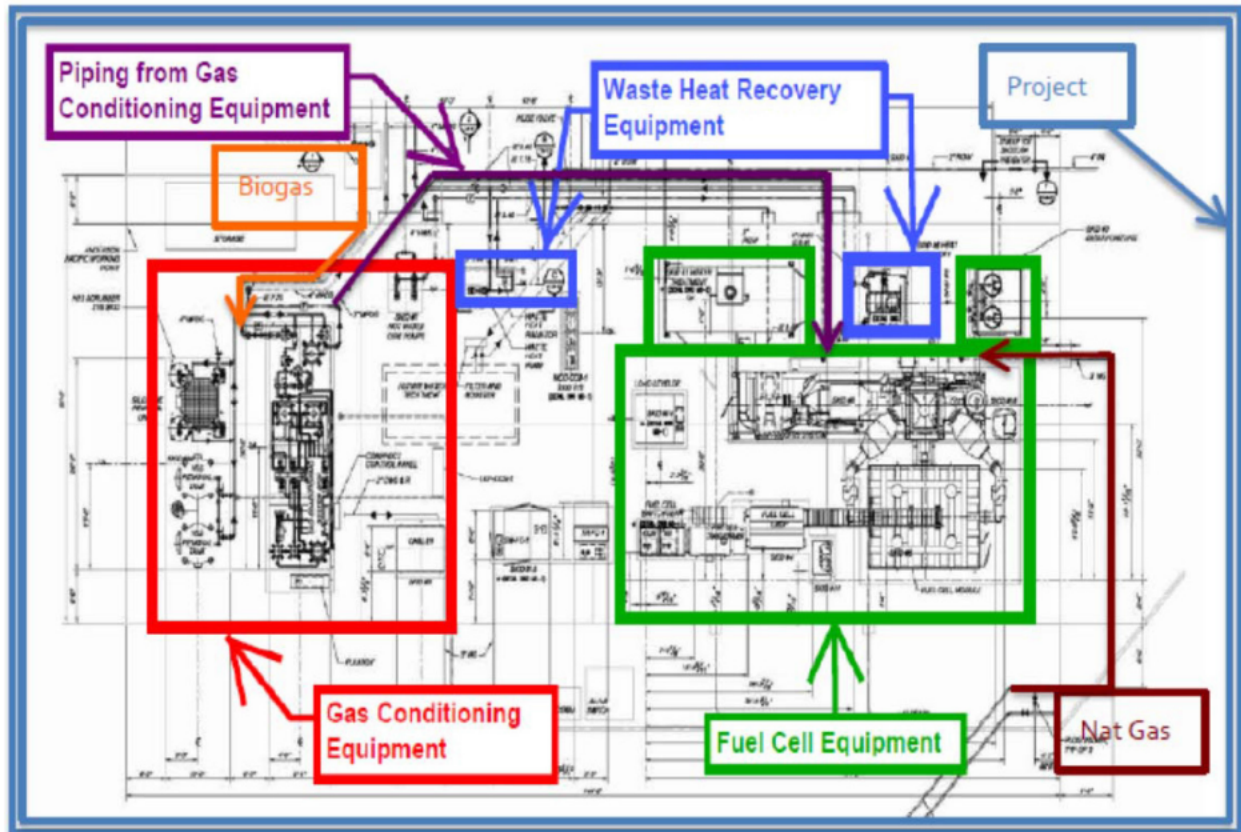
As jointly stipulated to by the parties, “[t]he SJ-1 Project began commercial operations on June 15, 2012, utilizing natural gas to produce power for delivery to the San Jose grid and using the heat recovery system to capture excess heat from the fuel cell.” Mr. Sharma testified at trial that the gas conditioning equipment had to be installed prior to the “commercial operation date” of the SJ-1 facility. The parties also stipulated that the project “achieved the required 75% digester gas blend on June 15, 2012.”¹⁴ Another letter from Mr. Fuller, from FuelCell Energy, to Mr. Warfield, of UTS BioEnergy, contained in the record as a joint exhibit, stated that “the Fuel Cell Power Plant has

¹⁴ The SJ-1 power purchase agreement stated that the City of San Jose could terminate the agreement “if expected production of digester gas does not support at least 75% of the System’s rated capacity of 1.4MW”

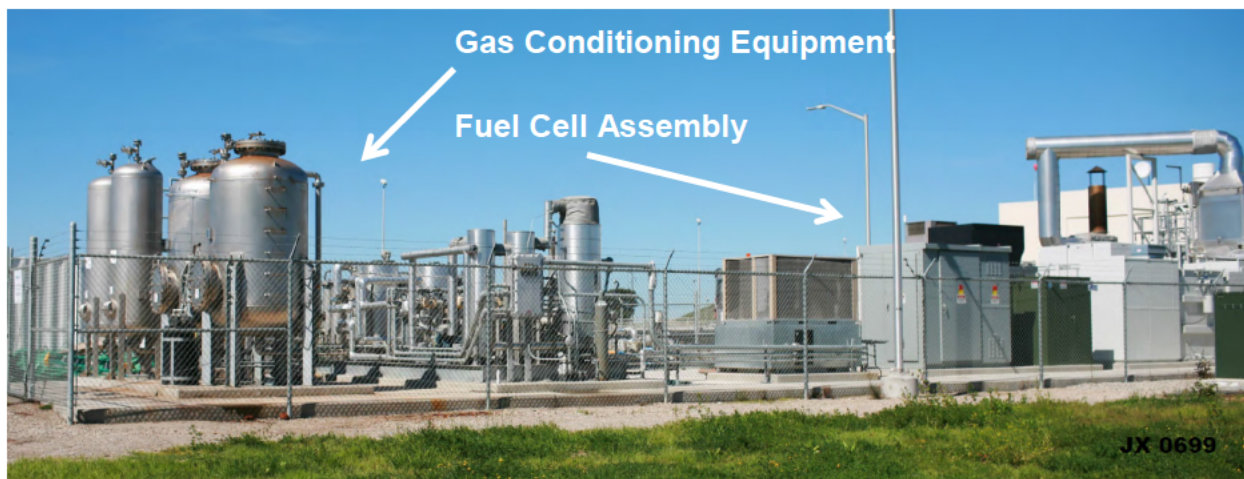
operated at the shown power level on greater than 75% anaerobic digester gas.” At trial, Mr. Sharma testified that SJ-1 operates on almost one hundred percent biogas, although he admitted that “there might be some blending with natural gas.” The parties jointly provided exhibits of visuals of the SJ-1 fuel cell project. Shown below is an overhead view of the project area, with additional explanation of the location of the various facilities provided by SJ-1:



Additionally provided as a joint exhibit by the parties is an engineering drawing of the SJ-1 project, with the various components identified by the parties:



Furthermore, the parties provided as a joint exhibit the following picture of the SJ-1 project, with the gas conditioning equipment on the left side and the fuel cell equipment on the right side, as testified to by Mr. Sharma:



(arrows provided by the court). Mr. Sharma testified regarding the SJ-1 site that it "is much cleaner than RP1 because we did not have the issues of space limitations at San Jose that we had at RP1, so everything that includes the fuel cell power plant facility -- that includes gas conditioning system -- sits on a single platform and it is a -- there is a

chain link fence around it.” Mr. Sharma testified that most of the electrical and mechanical equipment “was supplied by FuelCell Energy.”

Plaintiffs allege that “SJ-1 incurred \$9,440,141 in total costs to construct the Fuel Cell,” although the breakdown of the costs has not been stipulated to by the parties. Based on a review of the various construction and sales contracts discussed above related to the SJ-1 project, the court has provided an estimated breakdown of a portion of the costs associated with the SJ-1 project:

SJ-1 Project Costs

Item	Estimated Cost
Construction (from Otto H. Rosentreter)	\$1,627,500.00
Fuel Cell Equipment (from FuelCell Energy)	\$4,750,000.00
Gas Conditioning Equipment (from ESC Corporation)	\$1,525,000.00 ¹⁵
Heat Recovery Unit (from Cain Industries)	\$66,581.00
TOTAL:	\$7,969,081.00

This breakdown, however, represents only approximately 84.4% of the “total costs” plaintiffs allege were spent on the SJ-1 project.

Application for Section 1603 Grant

The parties stipulated that “RP1 and SJ-1 each submitted applications to U.S. Department of the Treasury (‘Treasury’) for payment in lieu of a tax credit under Section 1603 with respect to the costs for constructing the RP1 and SJ-1 Projects at the IEUA Regional Plant No. 1 and San Jose’s WPCP, respectively.” The parties provided as a joint exhibit the RP1 final “**Application for Section 1603: Payments for Specified Renewable Energy Property in Lieu of Tax Credits.**” (emphasis in original). Under the final, amended “**Narrative Description of Property,**” (emphasis in original), the applicant, RP1, stated: “The Inland Empire Project will purify and compress the biomethane gas generated by the Inland Empire Utilities Agency Regional Plant 1. The purified and compressed gas will be fed directly to the fuel cells placed into use at the Regional Plant 1 Facility to generate electricity and heat for delivery to and purchase by the Inland Empire Utilities Agency.” The application listed the “Qualified cost basis” of the project as \$16,532,985.00. Plaintiffs state in their complaint that this value is

¹⁵ Plaintiffs also state in their complaint that the “direct costs of the gas conditioning equipment were \$1,492,698 and the indirect costs included a pro rata portion (approximately 23 percent) of the build-design contract costs, sales taxes, and other costs.”

equivalent to the total cost of the RP1 project, \$16,616,320.00 “less certain ineligible costs.”¹⁶ According to the parties, RP1 applied for a grant of 30% of the reported cost basis, equivalent to \$4,959,896.00. The “**Property Placed in Service**” date for the RP1 project, according to the application, was September 11, 2012. (emphasis in original). The parties have stipulated that the RP1 Section 1603 application was received by Treasury on October 17, 2012.

The parties also provided as a joint exhibit, the SJ-1 final “**Application for Section 1603: Payments for Specified Renewable Energy Property in Lieu of Tax Credits.**” (emphasis in original). Under the “**Narrative Description of Property,**” (emphasis in original), the applicant, SJ-1, stated: “The San Jose Project will purify the biomethane gas generated by the San Jose Water Pollution Control Plant. The purified gas will be fed directly to the fuel cell placed into use as [sic] the San Jose Facility to generate electricity and heat for delivery to and purchase by the City of San Jose.” The application listed the “Qualified cost basis” of the project as \$9,282,447.00. Plaintiffs also state in their complaint that this value is equivalent to the total cost of the SJ-1 project, \$9,440,141.00, “less certain ineligible costs.” According to the parties, SJ-1 applied for a grant of 30% of the cost basis, equivalent to \$2,784,734.00. The “**Property Placed in Service**” date for the SJ-1 project, according to the application, was June 15, 2012. (emphasis in original). The parties stipulated that the SJ-1 application was received by Treasury on September 27, 2012.

Under section four of the RP1 and SJ-1 grant applications, the applicants were asked to state which “**Specified Energy Property**” the Section 1603 grant is for, as well as to “indicate which choice best describes the type of specified energy property.” (emphasis in original). Both RP1 and SJ-1 stipulated that they “indicated that the ‘best choice’ describing the” projects was “‘Fuel cell property’ and checked that item on” the Section 1603 grant applications. The “Fuel cell property” choice on the application was under the selection of properties available for selection as “**Specified properties eligible under section 48 of Internal Revenue Code.**” (emphasis in original). The description accompanying the “Fuel cell property” option was: “Fuel cell property — fuel cell power plant that has a nameplate capacity of at least 0.5 kW of electricity using an electrochemical process and an electricity-only generation efficiency greater than 30%.” (emphasis in original). A separate set of energy property options was available under a list of “**Specified properties eligible under section 45 of Internal Revenue Code.**” (emphasis in original). Of relevance to this dispute, another option the plaintiffs could have selected under this list was “Trash facility — uses municipal solid waste to produce electricity and is not a landfill gas facility.” Plaintiffs allege in their complaint that “Treasury’s application allows only one choice to be indicated as the ‘best’ choice,” and,

¹⁶ A “**REPORT OF MANAGEMENT ON ELIGIBLE COST BASIS,**” created by UTS BioEnergy, and provided in the record, states that the ineligible costs for the two projects consisted primarily of an “Asset Retirement Obligation,” which is “the cost of returning the site to its original state as is required under the terms of the power purchase agreement.” (capitalization and emphasis in original).

similarly, the parties jointly stipulated “Treasury’s application allows only one choice to be indicated.”

The parties stipulated that the “overarching” issue before this court is:

whether plaintiff is entitled to additional payments under § 1603 of the American Recovery and Reinvestment Tax Act (“ARRTA”), P.L. 111-5 (2009), as amended by § 707 of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, P.L. 111-312 (2010), beyond those awarded to it by the Department of Treasury. Specifically, plaintiffs applied for § 1603 payments for two projects utilizing fuel cells that it placed in service. Plaintiffs contend that they are entitled to include in the cost basis used to calculate their § 1603 payments costs associated with gas conditioning equipment, while defendant contends that those costs do not qualify.

The parties stipulated that “Treasury engaged the National Renewable Energy Laboratory (‘NREL’), a Government-sponsored laboratory, to review applications for Section 1603 payments. NREL reviewed the applications submitted by RP1 and SJ-1 and made recommendations to Treasury concerning those applications.” Donald Edward Settle, “senior project leader 4” at the NREL, testified for the defendant and explained at trial that, although contractually, the Department of Energy is partnering with the Department of the Treasury related to analysis of Section 1603 grant applications, “DOE is actually relying on us to provide the advice to Treasury in this matter.” At trial, Mr. Settle further explained that he was not a member of the Department of the Treasury or a government employee, but “an employee of the Alliance for Sustainable Energy, and that’s the contractor that manages the federal lab which is NREL.” Mr. Settle testified that he has an engineering degree and engineering work background and that from “2009 to present, I’ve been at NREL and serving mostly as the senior advisor to the U.S. Department of Treasury on the 1603 program.” Mr. Settle explained at trial that he initially served “as an advisor to U.S. Treasury, and I would lead the due diligence aspect of the program. And that was when we first started receiving applications the end of July in 2009.” He added that “[s]ince then, I’ve been more a project leader role.”

According to Mr. Settle, regarding the Section 1603 grant program, “NREL worked with Treasury to set up an online system” and application process, which, at the date of the trial, had received over 200,000 applications, with about 100,000 reviewed. Regarding the review process for applications, Mr. Settle testified that, after an electronic application came in, “we essentially assign two reviewers from our team to conduct the review.” He described the two reviewers:

There’s a primary reviewer, and their role is really to delve into the documentation and go back and forth with the applicant, asking clarifying questions, if that’s appropriate.

And then there's a secondary reviewer which still conducts a considerable review, but they're limited to either concurring or not concurring with the primary reviewer.

Mr. Settle stated at trial that for many projects he had served as a primary or secondary reviewer, as well as helped "other team members basically with their due diligence process." With regards to the RP1 and SJ-1 projects, Mr. Settle explained that he was not a primary or secondary reviewer, "but I was made aware of the application issues, by the primary and secondary reviewers, regarding the gas conditioning equipment and came in at that point to work with them to try to find the right solution."

Mr. Settle indicated at trial that the evaluators for the Section 1603 program mostly are employees of the Alliance for Sustainable Energy, the organization that manages NREL, with some temporary contractors. Mr. Settle explained that the Section 1603 evaluation team's skill levels were composed of a variety of different areas, both technical and non-technical:

So the -- the team actually we've probably had almost fifty people come through the program to serve as reviewer. Some of them brought different skills to the table, so we actually had a mix of people. Most people had advanced degrees from college. Some of them were from the legal side, law degrees. There were some engineers. There were people that had so-called tax experience, if you will.

Regarding tax experience, Mr. Settle stated at trial that "people who were brought into the program to do the due diligence were not retained specifically because they had tax experience." He added, however, that "[w]e do have certain employees within NREL who understand fairly well incentive programs that help with the deployment of renewable energy, so that does include taxes as they relate to renewable energy property." Mr. Settle testified that he would not describe any of the NREL employees to be tax experts, although Mr. Settle testified that for multiple applications, the NREL team, acting through the Department of the Treasury, consulted with the IRS for legal analysis related to certain Section 1603 applications. Mr. Settle stated at trial that, when doing reviews, a reviewer's analysis covered a "unique mix of understanding some of the technical aspects, understanding, you know, the tax laws or regulations" Mr. Settle indicated that, to arrive at their determinations, their team would look at engineering drawings, the project "engineering, procurement, and construction contract," as well as other contracts and documents.

The NREL evaluators examined whether the gas conditioning equipment fell within Section 1603's definition of a "QUALIFIED FUEL CELL PROPERTY," in order to be eligible for a grant. See Section 1603(d)(2). With regards to the gas conditioning equipment, Mr. Settle testified:

[W]e also looked at the definition of "fuel cell power plant." And we had worked through a fair number of fuel cell power plants within the system

and had not seen one that had this type of property with it, so in looking at the statutory definition, what we understood was that a fuel cell power plant was essentially within a certain definition and would not have included the gas conditioning equipment.

Despite the unique legal and technical questions posed by the RP1 and SJ-1 grant applications, in particular surrounding the gas conditioning equipment, Mr. Settle stated at trial that he could not recall if the IRS, or Treasury's Tax Policy section, was ever contacted with regards to the RP1 and SJ-1 applications. He also testified that he never himself contacted the IRS to clarify the tax issues related to the RP1 and SJ-1 applications. Mr. Settle also was asked at trial if NREL reached out to other technology laboratories regarding the issues raised. Mr. Settle testified that he did not reach out to the National Energy Technology Laboratory, which is another Department of Energy laboratory¹⁷ or the Department of Energy about questions related to the RP1 or SJ-1 applications, generally, or regarding whether fuel cell power plants include gas conditioning equipment as part of the eligible cost basis. Mr. Settle stated that "I also don't know if in fact other players on my team did not go and visit with the fuel cell experts within NREL" When asked, Mr. Settle acknowledged that he did not look at any industry standards with respect to fuel cells to answer the questions posted in the RP1 and SJ-1 applications, but "did look at various fuel cell providers and what they do provide as part of their customary fuel cell package."

Mr. Settle indicated at trial that, as opposed to reaching out to other agencies or outside resources, instead, NREL relied, in significant part, on what was customary in fuel cell projects their review team had encountered beforehand, to determine whether or not the RP1 and SJ-1 project gas conditioning equipment was eligible for a Section 1603 grant. Mr. Settle testified that of "250 to 300" funded fuel cell power plant grant applications, "less than half a dozen" of the projects contained gas conditioning systems for operation on biogas, because, for the remaining projects, "[t]hey're mostly natural gas and some methanol in the transportation." Mr. Settle added, in response to questions:

Q. But you based that determination [that gas conditioning equipment was not part of the fuel cell power plant] on looking to outside sources of information to determine what was customary or not to define effectively the fuel cell power plant under the code; isn't that right?

A. By "outside sources" do you mean those not provided by the applicant?
Because we did look --

¹⁷ The website of the National Energy Technology Laboratory explains that "NETL [National Energy Technology Laboratory] has expertise in coal, natural gas, and oil technologies; contract and project management; analysis of energy systems; and international energy issues." About, Nat'l Energy Tech. Lab., Dept. of Energy, <http://www.netl.doe.gov/about> (last visited March 31, 2015).

Q. Independent of the statute.

A. So independent of the statute, we did -- yeah. We looked at what it seems to be customary for the industry.

Mr. Settle expanded upon his response and stated that, for example, it was "customary" for fuel cells to run on natural gas, and, therefore, a natural gas desulfurization system would be allowable for a Section 1603 grant, as it is "a set of equipment that you can expect to find when you purchase a package fuel cell power plant." Mr. Settle explained that the interconnection equipment, pads, and wiring were similarly allowed because they were typical of fuel cell projects. Mr. Settle also created an analogy to cars in discussing what is "customary" for a project:

You know, if I was going to go buy a pickup truck from a dealer across the country, what would be customary would be to get a pickup truck that runs on gasoline. I could get it to run on natural gas, but it would be an extraordinary expense to get it to run on the natural gas, so the customary approach in that perspective is a truck that runs on gasoline.

Mr. Settle acknowledged that the plaintiffs claimed that the gas conditioning system was necessary for the RP1 and SJ-1 fuel cell projects to operate off of anaerobic digester biogas, and admitted that this "was a good point," but, regardless, "the way we read the tax code, we didn't see that it was a definitive point. It was not relevant, frankly, to basis." According to Mr. Settle, NREL considered what consisted of a fuel cell power plant as "what was customarily supplied by a fuel cell manufacturer," and found significant that "a separate vendor was providing gas conditioning equipment." Mr. Settle further testified that "[w]e obviously had the experience of all the other applications that we had seen, and we were not familiar with, to my knowledge, that there was no other projects that included special gas conditioning equipment for cleaning up biogas, digester gas" in the Section 1603 grant application. Mr. Settle, nonetheless, also stated that "I think ultimately we came down to the tax code in trying to figure out what was actually meant by the term 'fuel cell power plant' in the tax code," and indicated that reliance on what was "customary" in the industry was only a part of the overall analysis.

According to Mr. Settle at trial, he viewed the RP1 and SJ-1 contracts and concluded that they do not require the use of anaerobic digester biogas: "As I understand it, they had a contractual obligation to use either natural gas or biogas. But the principal purpose was probably the use of biogas." Mr. Settle later noted that "natural gas can be used, and I think there's a specified limit of 25 percent, if I recall correctly." He also added:

And in particular in this case, the applicant [RP1] placed the equipment in service two months prior I believe to the gas conditioning equipment even being operational, and so therefore, you'd have to ask the question how integral is it if in fact they started up the power plant, under the tax

definition of placed in service, without the biogas conditioning equipment actually in operation.

He continued:

So from our perspective, you know, just as one point would be how can you start up a facility and place it in service without something that is integral to its operation being there in place.

If you went to look at a biomass plant, for example, and you didn't have your conveyors and fuel yard, and so forth, available, you wouldn't be able to start up that biomass plant.

Mr. Settle also stated that, under the NREL review, contracts are relevant to the analysis, but "not the sole aspect."

Although Mr. Settle stated that some, "less than half a dozen," of the projects he had reviewed contained gas conditioning systems for operation on biogas, he initially testified that he was unaware of any application that chose, then, to include the gas conditioning equipment as part of the cost basis for the Section 1603 grant, except for RP1 and SJ-1. Mr. Settle later stepped back from those statements and admitted he did not know:

Q. Do you know, based on that testimony, whether Treasury or NREL allowed costs for gas conditioning equipment --

A. I don't.

Q. -- in particular applications?

A. I don't.

Q. Okay. Or disallowed.

A. Outside of these two, I'm not aware of any that were disallowed --

Q. Okay.

Mr. Settle testified that NREL did not initially consider whether or not RP1 or SJ-1 could qualify as trash facilities, because they did not designate this option on their online applications. Mr. Settle later stated that, although he did not remember when, "at some point we did evaluate" whether RP1 or SJ-1 could qualify as trash facilities. Mr. Settle stated that

We'd concluded that it was not qualified as a trash facility. It was not consuming, from our perspective, municipal solid waste. It was actually

taking digester gas into the plant. And we looked basically back to the definition of a trash facility as outlined in [I.R.C.] section 45 and did not find that it was compatible.

Mr. Settle further testified:

I think there was a letter from them at some point that basically said, you know, we're taking in municipal liquid waste, but we didn't find that they were actually taking in waste at all. They were taking digester gas.

And we didn't -- we analyzed the wastewater treatment plant, and the wastewater treatment plant was not subject to the municipal solid waste regulations, and based on our review did not feel that this was a trash facility as defined in the code.

In determining that the RP1 and SJ-1 projects were not using municipal solid waste, Mr. Settle testified, speaking about the evaluation team, "we just felt, based on what the actual facility[ies, referring to the RP1 and SJ-1 plants, are] being regulated as, not being regulated as a municipal solid waste treatment facility, therefore, it's not a trash facility." Mr. Settle testified he never formally communicated with the Environmental Protection Agency, the agency that oversees regulation of solid waste, 42 U.S.C § 6901 et seq., about this question, but that he had a conversation with an unidentified person from the Environmental Protection Agency Region 8, and that "the conclusion out of that was that this was not a trash facility."

In cross-examination, Mr. Settle reemphasized that the distinguishing factor as to whether or not plaintiffs' facilities qualified as trash facilities was due to NREL's conclusion that the anaerobic digesters feeding the RP1 and SJ-1 projects were not running off of municipal solid waste. Mr. Settle responded to a hypothetical question proposed by plaintiffs' counsel:

Q. . . . If we had an anaerobic digester that digested municipal solid waste, let's say, and let's just say that's -- we have food waste from maybe local restaurants, and you put that into an anaerobic digester. And that is not a wastewater treatment facility. And then you produce biogas from that; right?

A. Yes.

Q. And then you run that biogas through gas conditioning equipment and then put it in -- let's just say it's a combustion generator --

A. Sure.

Q. -- to make contract electricity. Would you call that a trash facility?

A. Yes. It sounds like a trash facility.

. . .

Q. Okay. The same facts, but instead of a combustion generator, we have a fuel cell and we put a fuel cell in that same train. Would you say that's a trash facility?

A. Yes.

. . .

Q. So the real dispute is whether -- is the difference between a wastewater treatment facility and what would be otherwise an anaerobic digester gas -- anaerobic digester that's operating on what you're terming municipal solid waste.

A. Yes. That's how we looked at it, is essentially that, you know, the municipal wastewater treatment plant was not processing solid waste, the fuel cell itself was not using municipal solid waste, and therefore, it did not qualify as a trash facility.

The record indicates that during the application review period, the agency also excluded from the cost basis for the RP1 and SJ-1 grants the cost of the heat recovery units supplied by Cain Industries. Mr. Settle explained that he and the NREL examiners:

[W]e looked at the definition of a fuel cell plant power plant [sic] in the statute or in the tax code, if you will, and the definition of "fuel cell power plant" referred to the production of electricity, did not refer to the production of thermal energy, and so we deemed the -- that the thermal equipment to be noneligible, nonqualifying.

Mr. Settle stated that there "was some back-and-forth on that" with the parties, "but at some point they agreed to remove the hot water or the thermal aspects of the project," although he admitted he could not recall the details.¹⁸

Mr. Settle further testified that, after the review by NREL, the application "goes

¹⁸ At trial, plaintiffs disputed that the plaintiffs had agreed that the heat recovery unit was an ineligible cost. Plaintiffs' counsel stated: "The agreement was to remove it as part of a concession to Treasury in order to move the process forward and resolve it administratively." In the record, and discussed more below, is a letter from UTS BioEnergy to a "Treasury 1603 Reviewer," which states: "Therefore, we now understand that the HW [Hot Water] pump system costs and HRU [Heat Recovery Unit] costs are ineligible costs."

electronically to the U.S. Department of Treasury with a recommendation. And all decisions rest with Treasury in terms of eligibility and cost basis, and so forth, so if they agree with our recommendation, then they'll move forward with the award and funding." Mr. Settle emphasized that the Department of the Treasury makes the final Section 1603 determinations: "Ultimately it's Treasury's decision how to look at the application and make the decisions," and that NREL relies "on Treasury where there's an issue of legality." Mr. Settle indicated that his contact at Treasury was Ellen Neubauer. Mr. Settle further testified at trial that he believed the "fiscal assistant secretary" is responsible for the Section 1603 program. Mr. Settle testified that he would not necessarily be aware of any deliberations at Treasury regarding legal questions related to the RP1 and SJ-1 applications. No witnesses from Treasury testified at trial to describe the final steps of the evaluation process before the final award decision was made.

The record indicates that staff from Treasury and/or NREL communicated back and forth with plaintiffs during the selection process. Although the record does not appear to contain a complete collection of the conversations at the administrative level between the government and plaintiffs, it does contain what appears to be a portion of a November 12, 2012 response from a David Allen, on UTS BioEnergy letterhead, to an unnamed "Treasury 1603 Reviewer," regarding questions asked by the government about plaintiffs' Section 1603 applications. This response letter provides additional, general information about the RP1 project, and also addresses a question posed by the government, which asked:

Question: 5. Ineligible costs: All costs associated with the gas conditioning equipment/installation and heat capturing equipment/installation are ineligible for a fuel cell project under Treasury 1603. Please remove all ineligible costs and provide a revised cost basis.

(emphasis in original). Mr. Allen responded:

Answer: The biogas conditioning equipment, the heat recovery unit and the HW pump system are all tangible personal property and integral to the fuel cell installation. The fuel supply for the fuel cell project is digester biogas from a wastewater treatment plant and it is therefore a renewable energy source. Digester gas must be treated, cleaned and scrubbed to meet the fuel supply specifications. This would be true of any renewable biogas utilized for the production of electrical power. The gas treatment and conditioning system (ESC contract) is therefore integral to the fuel cell and the project does not work without it.

In order to produce the digester biogas, heat is required in the process. The heat recovery/recapture system including the heat exchanger, hot water pumps, valves and piping are integral to the fuel cell system to recover otherwise wasted renewable energy utilized in the production of the renewable biogas fuel source for the fuel cell.

We do not believe any of these costs to be ineligible as the equipment is integral to the fuel cell operation. Accordingly we have not provided a revised eligible cost basis.

A similar exchange occurred between SJ-1 and a "Treasury 1603 Reviewer," in the form of a December 21, 2012 response to questions from the government, contained in the record. The government reviewer asked:

Question 5A. Ineligible Costs: The Program Guidance indicates that eligible property is only tangible personal property as defined in 1.48-1(c) and (d) of the Income Tax Regulations and is an integral part of the facility. It appears that the cost breakdown includes costs that are not eligible for payment under the Treasury 1603 program, including all hard and soft costs associated with the biogas conditioning equipment (ESC contract), HRU [heat recovery unit], and HW [hot water] pump systems. The review team has reaffirmed that these costs are not integral to the energy property and are therefore not eligible for Treasury 1603 funding. Please submit a revised cost basis in spreadsheet format which excludes these ineligible costs and clearly identifies how all the ineligible costs were removed.

Mr. Allen, again using UTS BioEnergy letterhead, gave a detailed, five page response, emphasizing that the gas conditioning equipment is "Contractually Required," "Integrated and Contiguous," and "Integral" to the project, as well as that the equipment falls within the definition of "Balance of Plant." (emphasis in original). He argued that the biogas conditioning equipment was contractually required because the "City of San Jose Request for Proposal, RFP 09-10-15, Power Purchase & Site Lease Agreement for Fuel Cell Power Production ('RFP') . . . state[d] the essential requirements of the Project including the use of digester gas." (footnote omitted). Further, based on a physical description of the project site, he contended that "the biogas conditioning equipment is tangible personal property squarely located at the site of the energy property that is contiguous and integrated to the fuel cell system." Moreover, Mr. Allen argued the gas conditioning equipment is integral because "[t]he unconditioned digester biogas that is available on the WPCP [Water Pollution Control Plant] site does not meet the fuel cell manufacturer's fuel specification so it cannot be used in the Project without conditioning it first. In other words, the fuel cell cannot operate using unconditioned biogas." Thus, according to Mr. Allen, "without biogas conditioning equipment, this Project cannot generate electricity from the digester biogas," and, thus, the equipment is "integral and essential to the generation of electricity from digester biogas by this Project." Mr. Allen also stated, "technically, operationally and contractually the biogas conditioning equipment is an integral balance of plant component of the Project."

Mr. Allen further analogized the role of the gas conditioning equipment in a fuel cell system to that in a landfill gas facility, stating:

In a landfill gas facility (generating electricity from biogas produced by the

biodegradation of municipal solid waste) biogas conditioning equipment is considered an integral part of the facility and an eligible cost under the 1603 program.

. . .

Here, the Project's gas conditioning equipment performs the same integral process as it would in a landfill gas facility. The biogas produced by the biodegradation of biosolids in the wastewater treatment process is captured to generate electricity at the WPCP. This captured digester biogas must be *processed* by the gas conditioning equipment to remove the high level of siloxanes, hydrogen sulfide and other contaminants contained in it before it can be used in the fuel cell.

(emphasis in original). Mr. Allen added that "[w]hile the biogas conditioning equipment could condition digester biogas without the fuel cell equipment, the fuel cell equipment could **not** generate electricity from the digester biogas without the biogas conditioning equipment." (emphasis in original). He stated:

While Treasury may have encountered other fuel cell projects where biogas conditioning equipment was not necessary to generate electricity because those fuel cells run on pipeline natural gas (which by pipeline standards must meet the fuel cell manufacturer's fuel quality specifications), here we believe that we have clearly demonstrated that for *this Project* the biogas conditioning equipment is a balance of plant component that is contiguous, essential, necessary and integral to the ability of *this Project* to generate electricity using digester biogas derived from municipal liquid waste at a wastewater treatment plant.

(emphasis in original). In the letter, however, Mr. Allen suggested that the costs related to the heat recovery system were ineligible: "The fuel cell equipment will generate electricity without the HW [hot water] pump system or the HRU [heat recovery unit], just less efficiently. Therefore, we now understand that the HW pump system costs and HRU costs are ineligible costs."

According to the parties, "[o]n January 14, 2013, Treasury issued a 'Section 1603 Award Letter' to RP1 in which it approved a payment of \$4,026,253 for the RP1 Project," which was \$933,603.00 less than requested by RP1 in their grant application. The parties stipulated that "Treasury based its payment on a reduced basis amount of \$13,420,843." In the award letter, submitted as a joint exhibit, Treasury stated: "We have reduced the payment to match the adjusted cost basis by removing costs associated with the gas conditioning equipment and hot water system, which are ineligible," but the award letter provided no additional discussion on the issue.

After receipt of the award letter, the record indicates that on January 17, 2013, Mr. Allen, this time using an Anaergia e-mail account, sent an e-mail to the "1603

Awards” mailbox, asking:

While [sic] are pleased to receive the 1603 award we are disappointed that the gas conditioning equipment that makes it a truly renewable energy project has been disallowed as an eligible expenditure.

Can we get an explanation of why the gas conditioning equipment is not considered integral to the project?

Also, is it possible to get a break down of how the final award was arrived at?

A couple of months later, on March 29, 2013, a response was provided from the “1603Awards@treasury.gov” e-mail address to Mr. Allen, stating in relevant part:

The term “fuel cell power plant” means an integrated system comprised of a fuel cell stack assembly and associated balance of plant components which converts a fuel into electricity using electrochemical means. This does not allow for the production or refining of the fuel source used to feed the fuel cell. Therefore the costs associated with conditioning the gas and collecting the waste heat are not eligible and were removed from the cost basis.

Cost Basis:

Equipment

Fuel Cell \$8,858,000.00

Hot Water System \$0

Gas Treatment \$0

BD [Build & Design] Contract \$2,272,417.81 (79% of total contract, based on 79% of the equipment costs were eligible)

Sales Tax

Fuel Cell \$670,995.00

Heat Exchanger \$0

Gas Conditioning \$0

Other Costs \$1,619,430.37

Total Costs \$13,420,843 (revised cost basis) (equipment + Eligible portion of BD contract + eligible sales tax + other costs) New Payment \$4,026,253 (revised award amount).

The parties have jointly stipulated that “RP1 is not challenging the costs associated with the heat recovery system described in Treasury’s Section 1603 Award Letter.”

Regarding the SJ-1 project, the parties further stipulated that, “[o]n March 1, 2013, Treasury issued a ‘Section 1603 Award Letter’ to SJ-1 in which it approved a

payment of \$2,085,055 for the SJ-1 Project,” \$699,679.00 less than the amount that SJ-1 applied for under the program. According to the parties, Treasury “based its payment on a reduced basis amount of \$6,950,182.” The award letter from Treasury, provided as a joint exhibit, states similarly as with the RP1 letter that, “[w]e have reduced the payment to match the adjusted cost basis by removing costs associated with the gas conditioning equipment, which are ineligible.” The SJ-1 project preemptively acted, prior to award, to remove from its application the costs related to the heat recovery system. The parties stipulated that “[d]uring Treasury’s review process, SJ-1 voluntarily removed \$216,320 representing the costs associated with a heat recovery system and certain other costs reducing its reported cost basis to \$9,066,127. SJ-1, therefore, is not challenging those costs in this proceeding.”

The plaintiffs RP1 and SJ-1 together approached Treasury about the removal of the cost of the gas conditioning equipment from their awards. The record contains, as a joint exhibit, a May 23, 2013 letter from David Lowman of Hunton & Williams, the law firm representing plaintiffs in the above captioned case, to Ellen Neubauer, who the parties stipulated is “the program manager for the Section 1603 program.” The letter stated that “I [Mr. Lowman] would appreciate the opportunity to discuss with you the above applications in which Treasury reduced the grants for two fuel cell projects on the ground that the associated gas conditioning equipment does not qualify.” The letter provided arguments as to why the gas conditioning equipment should have been included in the grant. In the letter, Mr. Lowman restated that, “the Section 1603 guidance defines a qualifying ‘fuel cell power plant’ as ‘an integrated system comprised of a fuel stack assembly and associated balance of plant components.’” Mr. Lowman also stated: “It is indisputable that, one, the gas conditioning equipment and the fuel cells are part of an ‘integrated system,’ and, two, the gas conditioning equipment represents ‘associated balance of plant components.’” (quoting Section 1603). In support, Mr. Lowman pointed to a number of alleged factors indicating the importance of the gas conditioning equipment to the overall project, including that the biogas, if not conditioned, would damage the fuel cells, as well as that “[u]nder the contracts with the site hosts, UTS must supply the gas conditioning equipment itself,” and “[t]he fuel cells and the gas conditioning equipment were placed in service at the same time, and operate together.” Plaintiffs also formally raised the argument that the gas conditioning equipment and fuel cells also could be awarded the full desired Section 1603 grant if they were instead classified as trash facilities. Mr. Lowman stated in the letter that “these projects, in fact, satisfy the definition of a qualified ‘trash facility’ and could have filed their applications as that type of facility.” The letter stated in addition:

The biogas at these projects is produced from anaerobic digesters that digest and gasify the sludge from the wastewater treatment plants. That wastewater treatment sludge is solid waste per the Solid Waste Disposal Act and, therefore, is municipal waste for purposes of Section 45 and the 1603 Grant. Because the biogas is produced from municipal waste and the fuel cells convert that biogas to electricity, the plants are “trash facilities” as that term is defined in the Treasury Guidance.

Mr. Lowman concluded by raising policy arguments in support of covering gas conditioning equipment under the Section 1603 grant program, stating:

It should be noted that the fuel cell projects here are exactly the kind of renewable energy projects that Congress sought to encourage when it enacted Section 1603. Indeed, DOE's Office of Energy Efficiency & Renewable Energy (EERE), working through DOE's Fuel Cell Technology Program in coordination with DOE's Biomass Program and NREL, have made the use of fuel cells at waste water treatment plants and landfills a priority. These sources create over 30% of U.S. methane emissions and represent an enormous source of potential energy.

According to the parties, "[o]n June 1, 2013, Ms. Neubauer responded by email" to the e-mail from Mr. Lowman. Ms. Neubauer initially stated in her response that "I have consulted with my IRS colleagues and am informed that the IRS has not had occasion to rule on the issues presented by these applications." She responded first to Mr. Lowman's claim that the gas conditioning equipment should be included under the "fuel cell property" designation as part of an "integrated system" with the fuel cell assembly:

Based on the plain and straightforward definition of a fuel cell property, as defined in the Section 1603 Program Guidance, we do not believe such property to include gas conditioning equipment. The definition of fuel cell property refers to specific equipment that converts a fuel into electricity using electrochemical means. The definition does not include equipment associated with producing/conditioning/delivering the fuel. Whether or not a property qualifies as a fuel cell property is not dependent on the type of fuel used. In sharp contrast, whether or not a facility qualifies as an open-loop biomass facility, closed-loop biomass facility, or trash facility is completely dependent on the resource from which the electricity is generated. Thus certain equipment necessary in using that resource to produce electricity can be considered part of the facility. That the properties at issue are co-located at a wastewater treatment plant, are contractually obligated to use biogas that is produced from the wastewater treatment plant, and are designed such that the biogas must be treated before it can be used in the fuel cell property, does not change our view.

While a fuel cell property is an integrated system, one need not look to what may or may not constitute an "integrated unit" in other contexts because the definition of fuel cell property precisely delineates what that integrated system is comprised of - a fuel cell stack assembly and associated balance of plant components. We are aware of no authority that would define "balance of plant components" for a fuel cell property to encompass gas conditioning equipment. The definition of fuel cell property includes the balance of system equipment to convert a fuel into electricity, not to extract or manufacture the fuel, clean it, deliver it, etc.

Ms. Neubauer dismissed Mr. Lowman's argument that the RP1 and SJ-1 fuel cell systems could alternatively qualify as a "trash facility," stating: "Whether or not the facilities would qualify as trash facilities is not relevant as the applicant did not apply for a trash facility. Ms. Neubauer stated that: "[i]n light of the above, the determinations on these applications are final."

On August 6, 2013, plaintiffs filed suit in the United States Court of Federal Claims, seeking "payment of the cash grant amounts mandated by section 1603 of the American Recovery and Reinvestment Tax Act of 2009." Plaintiffs claim that the Department of the "Treasury was required to make payment of the applied-for amounts to RP1 and SJ-1 because the associated gas conditioning equipment is 'specified energy property' under Section 1603," and that "Treasury's notifications to RP1 and SJ-1 do not provide the reasons for Treasury's determination to remove the costs associated with the gas conditioning equipment."

In this court, plaintiffs bring two separate arguments. First, plaintiffs claim that the gas conditioning equipment is part of the "associated balance of plant components" related to the grant available to "QUALIFIED FUEL CELL PROPERTY" under Section 1603. (capitalization in original). Plaintiffs explain:

Section 1603(d)(2) defines the term "specified energy property" to include any "qualified fuel cell property" which is further defined, by reference, in section 48(c)(1) of the Internal Revenue Code of 1986, as amended (the "Code" or "I.R.C."). . . . Section 48(c)(1) of the Code defines "qualified fuel cell property" as a "fuel cell power plant" that is defined as follows:

an integrated system comprised of a fuel cell stack assembly
and associated balance of plant components which converts
a fuel into electricity using electrochemical means.

Plaintiffs contend that the RP1 and SJ-1 fuel cells systems are contractually obligated to use the biogas from the waste treatment sites for environmental and economic purposes, and, therefore, these facilities require gas conditioning equipment. Plaintiffs further contend that the fuel cell assemblies and gas conditioning equipment were placed into service at the same time and at the same place, and are completely under the control of RP1 and SJ-1, not the IEUA or San Jose respectively. Plaintiffs conclude by stating:

The definition of "fuel cell power plant" is broadly worded to include the "integrated system" that is comprised of the fuel stack assembly and the "associated balance of plant components." In the case of fuel cell property, the "balance of plant" includes all supporting and/or auxiliary components based on the power source or site-specific requirements which are integrated into a comprehensive power system package. The "balance of

plant” for a fuel cell power plant includes the associated gas cleaning, processing, and conditioning equipment.

Plaintiffs in their alternative claim argue that the gas conditioning equipment, either individually or as part of the RP1 and SJ-1 fuel cell systems, also qualifies for a Section 1603 grant as “trash facilit[ies].” Plaintiffs state “Treasury’s application allows only one choice to be indicated as the ‘best’ choice. Accordingly, RP1 checked the box for fuel cell property even though the Fuel Cell property could also be described as a trash facility.” According to plaintiffs, “Treasury’s application contemplates that property may qualify under multiple categories of ‘specified energy property.’ The applicant’s selecting the ‘choice’ that ‘best describes’ its property does not foreclose any other ‘choice.’”

According to the parties’ joint stipulation of facts, “Defendant does not contend that plaintiffs may not assert their alternative ‘trash facility’ argument on the procedural ground that RP1’s and SJ-1’s applications checked the box for ‘Fuel cell property’ and not the box for ‘Trash facility,’” and the government has not sought to bar plaintiffs’ alternative grounds in this court. Plaintiffs argue:

Section 1603(d)(1) defines the term “specified energy property” to include “any qualified property” (defined, by reference, in section 48(a)(5)(D) of the Code) which is part of a “trash facility” described in section 45(d)(7). A “trash facility” is a facility which uses municipal solid waste to produce electricity. Under section 45(c)(6) of the Code, the term “municipal solid waste” has the meaning given the term “solid waste” under section 2(27) of the Solid Waste Disposal Act, 42 U.S.C. 6903, which specifically includes “sludge from a waste treatment plant.”

Plaintiffs offer in support that “[t]he biogas utilized in both Fuel Cells is produced through an anaerobic digestion process,” and that “[t]he anaerobic digestion process at both the IEUA and San Jose sites involves the anaerobic digestion of the ‘sludge’ – i.e., the solid portions – from the wastewater treated at the two plants.”

Plaintiffs seek \$880,237.00 in additional Section 1603 grant money related to the gas conditioning equipment for the RP1 project, because according to plaintiffs “RP1 is entitled to a total grant of \$4,910,086, which includes the costs relating to the associated gas conditioning equipment,” and which is more than the grant of \$4,026,253.00 that RP1 did receive.¹⁹ With respect to the SJ-1 plant, plaintiffs seek

¹⁹ In the parties’ joint stipulations of fact, plaintiffs claim only \$880,237.00 as owed to them by the government for the RP1 gas conditioning equipment, \$3,596.00 less than what was alleged in the complaint, \$883,833.00. In their final brief to the court, plaintiffs asked for a total award of \$1,515,020.00, also reduced regarding the RP1 requested amount by \$3,596.00 from the amount listed in plaintiffs’ complaint. This difference of \$3,596.00 has not been fully explained by the parties, but may be due to a revision by the parties of the costs of the Heat Recovery Units, which are part of the overall RP1

\$634,783.00 in additional Section 1603 grant money related to the gas conditioning equipment for the SJ-1 project, because “SJ-1 is entitled to a total grant of \$2,719,838, which includes the costs relating to the associated gas conditioning equipment,” and which is more than the grant of \$2,085,055.00 that SJ-1 did receive. This appears to result in a total, cumulative request for \$1,515,020.00. Plaintiffs also seek to “[v]acate Treasury’s final determinations regarding the RP1 and SJ-1 applications under Section 1603,” as well as any other relief the court deems proper.

DISCUSSION

According to plaintiffs, “[t]his Court has jurisdiction over the subject matter of this action pursuant to the Tucker Act, 28 U.S.C. § 1491 because Section 1603 is a money-mandating source of law that requires the payment of the costs applied for by RP1 and SJ-1,” citing ARRA Energy Co. I v. United States, 97 Fed. Cl. 12 (2011). Defendant does not contest jurisdiction. Section 1603(a) of the American Recovery and Reinvestment Act states:

(a) IN GENERAL.—Upon application, the Secretary of the Treasury shall, subject to the requirements of this section, provide a grant to each person who places in service specified energy property to reimburse such person for a portion of the expense of such property as provided in subsection (b).

Section 1603(a) (capitalization in original). A judge of this court has held that the language of Section 1603(a) “compels the government to provide a grant to any person who places specified energy property into service, subject only to the express requirements set forth in the statute.” ARRA Energy Co. I v. United States, 97 Fed. Cl. at 20–22; see also Clean Fuel LLC v. United States, 110 Fed. Cl. 415, 419 (2013) (agreeing with the court in ARRA Energy Co. I that Section 1603 is money-mandating insofar as the suit is for “‘a grant . . . to reimburse’ the cost of certain ‘energy property.’” (quoting Section 1603(a)) (modification in original)); LCM Energy Solutions v. United States, 107 Fed. Cl. 770, 774 (2012) (affirming ARRA Energy Co. I). The United States Court of Appeals for the Federal Circuit has “‘repeatedly recognized that the use of the word “shall” generally makes a statute money-mandating.’” Greenlee Cnty., Ariz. v. United States, 487 F.3d 871, 877 (Fed. Cir.) (quoting Agwiak v. United States, 347 F.3d 1375, 1380 (Fed. Cir. 2003)), reh’g and reh’g en banc denied (Fed. Cir. 2007), cert. denied, 552 U.S. 1142 (2008); DeKalb Cnty., Ga. v. United States, 108 Fed. Cl. 681, 695 (2013); Lummi Tribe of Lummi Reservation v. United States, 99 Fed. Cl. 584, 594 (2011).

Plaintiffs presented three witnesses at trial, introduced above, Arun Sharma, President of Anaergia North America, Anthony Leo, Vice President of Applications and Advanced Technologies for FuelCell Energy, and Sarwan Wason, Senior Vice President

and SJ-1 projects. The parties have stipulated that the parties are not seeking recovery related to the cost basis of the Heat Recovery Units used in the RP1 and SJ-1 projects.

of Carollo Engineers.²⁰ Defendant presented two witnesses at trial, Donald Edward Settle, Senior Project Leader 4 at NREL, and defendant's expert, Trent Markell, professional mechanical engineer and founder and Principal of PF Engineer, LLC, which he indicated provides engineering consulting for energy projects. Sarwan Wason, plaintiffs' expert, was admitted as an expert witness in the "[d]esign and engineering of fuel cell power plants using anaerobic digester gas as a fuel source." Defendant's expert, Trent Markell was admitted as "an independent engineering expert in the energy industry."²¹

²⁰ Mr. Wason stated at trial that he was a "senior vice president of Carollo Engineers," and that Carollo Engineers "specialize[s] in designing water and wastewater plants." He testified that he has been with Carollo Engineers for forty two years. Mr. Wason stated in his report that "I am a registered mechanical engineer with over 40 years of experience in design of cogeneration (combined heat and power or CHP [Combined Heat and Power]) plants using digester gas as fuel including fuel cells, gas turbines, internal combustion engines and micro turbines power generation technologies." He added: "I have been involved in the design of over 20 digester gas cogeneration projects during the last 40 years," "was project manager for the San Jose fuel cell power plant project," and was involved in multiple other fuel cell projects in the California area. Mr. Wason testified that his specialization "is designing cogeneration plants and pump stations and large mechanical, complicated mechanical systems in wastewater plants and water plants." He was admitted as an expert witness in the "[d]esign and engineering of fuel cell power plants using anaerobic digester gas as a fuel source." Both Mr. Sharma, from Anaergia, and Mr. Leo, from FuelCell Energy, testified that Mr. Wason was involved in the development of the SJ-1 project, through his work with Carollo Engineers.

²¹ In his expert report, Mr. Markell stated that "I am the founder and Principal of PF Engineer, LLC, which provides independent engineering consulting for energy projects. I have over 22 years of engineering experience with approximately 20 years working with energy projects," including energy facilities "with a combined capacity in excess of 37,000 Megawatts, ('MW') and biofuels projects with a combined production capacity in excess of 2 billion gallons per year." Mr. Markell indicated at trial that his primary background is in design turbines and engines, but that this has been supplemented through work as an independent engineer, in which "you look at the projects from a much higher level, so you have a better understanding of the technical aspects of the project as well as the economic and legal." In coming to his opinion, Mr. Markell indicated he looked at the actual project site, "all of the contracts," how the projects will be "operated and maintained," "environmental aspects," "technical inputs," and "the financial model." Although he testified at trial that he worked on "around 300 projects" in the energy industry, including projects involving anaerobic digester biogas and wastewater treatment facilities, he admitted that "I have actually not worked on a fuel cell [project] where I've been paid." He testified he performed two reviews of multi-kilowatt non-stationary fuel cell systems, although acknowledging that the RP1 and SJ-1 projects are stationary systems, each multiple megawatts in size. He testified that his two prior informal reviews were conducted three to five years prior to this trial, and lasted "[e]ach one probably a couple of hours." Mr. Markell testified that he performed

The parties dispute the extent to which non-expert witnesses could be used to provide opinion testimony. Plaintiffs note that although Mr. Leo, from FuelCell Energy, was not offered as an expert witness, “[a]t trial, the Court noted Mr. Leo’s ‘great qualifications,’” and, thus, plaintiffs contend, “Mr. Leo has a deep technical knowledge in fuel cells and would be qualified to offer expert opinions.” Plaintiffs assert that, regarding defendant’s expert witness, “Mr. Markell’s almost non-existent experience with fuel cell power plants provides no substitute for Mr. Leo’s 30 years of experience in the fuel cell industry,” even though Mr. Leo was not qualified as an expert witness. Plaintiffs contend that “[w]here opinion testimony bears a ‘rational connection’ to those facts, the Court has also held that a lay witness may ‘under certain circumstances express an opinion even on matters appropriate for expert testimony,’” quoting in support Global Computer Enter., Inc. v. United States, 88 Fed. Cl. 52, 67 (2009), and Union Pac. Res. Co. v. Chesapeake Energy Corp., 236 F.3d 684, 692 (Fed. Cir. 2001). Regarding Mr. Sharma, from Anaergia, plaintiffs also contend that “Arun Sharma likewise is a fuel cell industry insider” and in certain areas his testimony should be given more weight than defendant’s expert witness, “to opine on what the industry views as a fuel cell power plant.”

Defendant responds that “[t]he Court should not rely on opinion statements from Mr. Leo [of FuelCell Energy], because he was not offered or qualified as an expert,” citing Rule 701 of the United States Federal Rules of Evidence. Defendant further states that

While much of Mr. Leo’s testimony was permissible, F.R.E. 701 affects how the testimony is accepted by the Court. Plaintiffs may not rely on the statements they describe as being made from “his industry perch” or any opinions he might have “as an experienced industry insider.” The Court may take such testimony as statements of his personal belief, but it cannot accept it as the opinion of an expert or as evidence of industry practice.

(internal citation omitted). Defendant also contends that Mr. Leo “cannot testify as to the proper interpretation of the terms in the statute, whether from an industry or engineering perspective, as Mr. Markell does (or as Mr. Wason could have done, had he been asked to look at the statute).” Defendant further alleges that Mr. Sharma, from Anaergia, is not a “fuel cell industry insider,” and notes that “Mr. Sharma testified that the projects were the first fuel cell projects for his company.” Defendant claims that the case plaintiffs cite to “merely reiterates the basic standards that lay opinion testimony “must

additional research in preparation of this case, but also admitted at trial that he did not consult with any fuel cell manufacturers or contact FuelCell Energy as part of his preparation, nor did he consult with anyone from the Department of Energy or the National Energy Technology Laboratory, although he did review the documents offered by the parties in this case. The government offered Mr. Markell, without objection from plaintiffs, and the court admitted Mr. Markell as “an independent engineering expert in the energy industry.”

have a rational connection,” to “facts within [the witness’s] range of generalized knowledge, experience, and perception,” and such testimony may not be based upon scientific, technical, or other specialized knowledge,” quoting Global Computer Enter., Inc. v. United States, 88 Fed. Cl. at 67. (internal citations omitted in original).

Defendant alleges that plaintiffs’ witnesses are biased, stating “Mr. Markell was the only truly independent witness to testify at the trial. Every other witness was involved in the projects in some capacity and has either a direct or indirect financial interest at stake in this litigation.” Defendant adds that plaintiffs’ descriptions of Mr. Sharma, from Anaergia, and Mr. Leo, from FuelCell Energy, as “industry insider[s]” “just highlights their inherent bias: they or their companies all stand to benefit from a broad definition of fuel cell power plant.” Plaintiffs deny any incidence of bias and further respond that defendant’s allegations of bias on the part of Mr. Leo are “cheap and not reflective of the balanced and credible testimony that Mr. Leo provided.” Plaintiffs add that “[t]he Government’s further assertion that Mr. Leo is not entitled to give fact and opinion testimony on industry practice superior to their expert, who has no experience in the fuel cell industry and who relied on Mr. Leo’s publications, is out of touch with this Court’s position on lay witness opinion testimony.” (internal citation omitted).

Rule 701 of the 2015 Federal Rules of Evidence states:

If a witness is not testifying as an expert, testimony in the form of an opinion is limited to one that is:

- (a) rationally based on the witness’s perception;
- (b) helpful to clearly understanding the witness’s testimony or to determining a fact in issue; and
- (c) not based on scientific, technical, or other specialized knowledge within the scope of Rule 702.

Fed. R. Evid. 701 (2015) (FRE). The Federal Rules of Evidence have recognized exceptions to the Rule 701(c) limitation on lay witness testimony “based on scientific, technical, or other specialized knowledge.” See id. For example, a business owner or executive, such as Mr. Sharma, President of Anaergia North America, could be allowed to testify as to items he would be aware of as a result of his position. See Fed. R. Evid. 701, Advisory Committee Notes ¶ 4 (Dec. 2000) (“Such opinion testimony is admitted not because of experience, training or specialized knowledge within the realm of an expert, but because of the particularized knowledge that the witness has by virtue of his or her position in the business.”). Similarly, Mr. Leo could be allowed to testify as to the operations of FuelCell Energy, as well as their products and contractual relationships, given his position as Vice President of Applications and Advanced Technologies for FuelCell Energy.

The 2000 Advisory Committee Notes to FRE 701 state: “[T]he distinction between lay and expert witness testimony is that lay testimony ‘results from a process of reasoning familiar in everyday life,’ while expert testimony ‘results from a process of reasoning which can be mastered only by specialists in the field.’” (internal citation

omitted). A judge of this court appropriately recognized that “the difficulty in administering the 2000 amendment [is] drawing the line between lay and expert testimony.” DataMill, Inc. v. United States, 91 Fed. Cl. 722, 735 (2010) (quoting 1 McCormick On Evid. § 11 (Kenneth S. Broun et al. eds., 2006)); see also 1 McCormick On Evid. § 11 (7th ed. 2013) (noting that “[t]estimony by physicians in civil cases can pose the same line-drawing problems”). In DataMill, the judge concluded:

“The general application of Rule 701 indicates that a lay witness may testify about facts within his or her range of generalized knowledge, experience, and perception.” [United States v. Espino, 317 F.3d [788, 797 [(8th Cir. 2003)]. The opinion “must have a rational connection to those facts.” Miss. Chem. Corp. v. Dresser–Rand Co., 287 F.3d 359, 373 (5th Cir. 2002); accord Union Pac. Res. Co. [v. Chesapeake Energy Corp.], 236 F.3d at 693 (sustaining the district court’s decision to admit testimony from eight witnesses with “extensive personal experience” in the oil drilling industry); Burlington N. R.R. Co. [v. State of Neb.], 802 F.2d [994,] 1005 [(8th Cir. 1986)] (“A lay witness’ testimony in the form of opinions or inferences need only be rationally based on perception . . .”). Where the testimony is based upon personal knowledge of the facts underlying the opinion and the opinion is rationally related to the facts, a lay witness may, “under certain circumstances[,] express an opinion even on matters appropriate for expert testimony.” Soden v. Freightliner Corp., 714 F.2d 498, 511 (5th Cir. 1983) (citing cases from the Eighth Circuit and the United States Courts of Appeals for the Tenth Circuit).

Id. at 736.

In the above captioned, highly technical case, all the witnesses put forward by the parties demonstrated they have significant knowledge of fuel cells and the fuel cell industry, gained not through specialized study, but through their day-to-day experiences in the field. In Global Computer Enterprises, Inc. v. United States, a decision by the United States Court of Federal Claims cited to by both parties, the court discussed whether or not lay witness opinion testimony “from individuals with decades of experience” working in information technology would be acceptable. See Global Computer Enter., Inc. v. United States, 88 Fed. Cl. at 65. The judge concluded that, “[a]s the Federal Circuit recognized in Union Pacific Resources Co., lay opinion testimony based upon extensive experience in an industry is admissible under Rule 701.” Id. at 67 (citing Union Pac. Res. Co. v. Chesapeake Energy Corp., 236 F.3d at 693). The Global Computer Enterprises court allowed lay opinion testimony from the experienced professionals, noting that “[a]ll of the proffered opinions of Messrs. Muslimani, Lucas, and Winslow are based upon circumstances they have observed or encountered within the industry and reflect a general knowledge of their work.” Id. In BPLW Architects & Engineers v. United States, another judge of this court reiterated that a lay witness can testify on his or her “perception,” as long as it is connected to their personal knowledge. See BPLW Architects & Eng’rs, Inc. v. United States, 106 Fed. Cl. 521, 545 (2012) (citing DataMill, Inc. v. United States, 91 Fed. Cl. at 734; and 1

McCormick on Evidence § 10 (6th ed. 2006) (“[A] witness may testify to an event or occurrence that he has seen himself, but not one that he knows only from the description of others.”)).

A review of the testimony leads the court to conclude that plaintiffs’ witnesses did not testify outside the range of their personal knowledge, based on what they learned from their positions within Anaergia (Mr. Sharma) and FuelCell Energy (Mr. Leo). As stated by the parties, the “overarching” question before the court is whether or not gas conditioning equipment should be included in the cost basis used to calculate a grant under Section 1603 of the American Recovery and Reinvestment Tax Act of 2009, Pub. L. No. 111-5, Div. B, tit. I, § 1603, 123 Stat. 115, 364–66 (2009). The court references the testimony of these fact witnesses insofar as it provides useful, specific, factual background, based on their personal and work experience. In addition, the court notes that defendant’s challenge to the admissibility of plaintiffs’ lay witness testimony is complicated by the fact that defendant does not specify the responses from Mr. Sharma and Mr. Leo with which it takes issue. Defendant’s counsel never objected to Mr. Sharma’s testimony at trial. Regarding Mr. Leo’s direct testimony, defendant’s counsel objected only once, when Mr. Leo was giving his interpretation of the Internal Revenue Code in response to Mr. Markell’s expert report. Defendant’s objection was sustained at that time and Mr. Leo’s responses on direct examination that were related to the topic were struck. In its brief, however, defendant tries to cast a more general shadow over plaintiffs’ witnesses without providing the specific statements that defendant considers objectionable. Defendant’s belated discomfort is insufficient to disqualify the testimony admitted into the record.

Regarding defendant’s allegation of bias on the part of plaintiffs’ witnesses, determination of a witness’ bias and credibility based on the evidence before the court is a factual question for the trial judge. The allegation appears to the court not to be one of improper bias, but rather one of credibility with respect to choosing between plaintiffs’ and defendant’s witnesses. In that regard, the trier of fact has significant discretion. See Anderson v. City of Bessemer City, N.C., 470 U.S. 564, 575 (1985) (“[W]hen a trial judge’s finding is based on his decision to credit the testimony of one of two or more witnesses, each of whom has told a coherent and facially plausible story that is not contradicted by extrinsic evidence, that finding, if not internally inconsistent, can virtually never be clear error.”); Honeywell Int’l, Inc. v. Hamilton Sundstrand Corp., 523 F.3d 1304, 1314 (Fed. Cir.) (citing Anderson v. City of Bessemer City, N.C., 470 U.S. at 575), reh’g en banc denied (Fed. Cir.), cert. denied, 555 U.S. 939 (2008); Green v. United States, 222 Ct. Cl. 600, 603, 650 F.2d 285 (1980) (“We adhere to the well-established rule that the findings of the trier of the facts whose responsibility it was to weigh the evidence, to hear and see the witnesses and to judge their credibility, and to observe their demeanor and responses under oath and on cross-examination should be sustained, absent serious prejudicial abuse of discretion, where there is substantial credible evidence and a rational basis to support the findings”); see also Univ. of Colo. Found., Inc. v. Am. Cyanamid Co., 342 F.3d 1298, 1304 (Fed. Cir.) (“Where there are two permissible views of the evidence, the factfinder’s choice between them cannot be clearly erroneous.”) (quoting Am. Original Corp. v. Jenkins Food Corp., 774 F.2d 459,

462 (Fed. Cir. 1985))), reh'g and reh'g en banc denied (Fed. Cir. 2003), cert. denied, 541 U.S. 988 (2004).

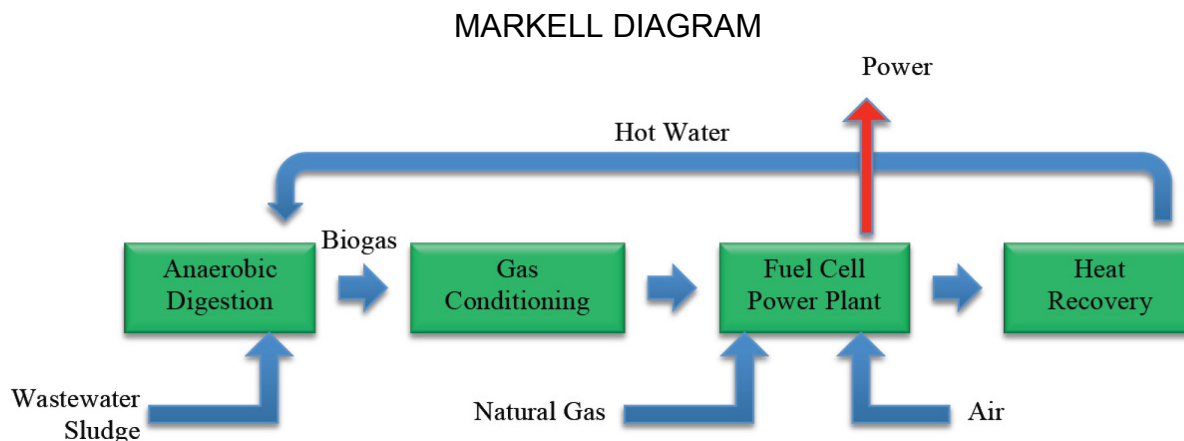
After a review of the trial testimony and the record before the court, the court finds no grounds in which to discount the testimony of plaintiffs' witnesses due to bias. It is true that the witnesses' employers and partners stand to gain if plaintiffs win this case. Mr. Sharma is the President of the indirect owner of RP1 and SJ-1, Anaergia. Mr. Leo admitted at trial that "FuelCell Energy is the only company that's selling fuel cells that can be installed on digester gas." Mr. Leo indicated that federal and state "subsidies are important to encouraging the purchase and installation of fuel cells." Mr. Wason also confirmed that FuelCell Energy, Mr. Leo's employer, is the only company "supplying the equipment for the fuel cell power plants for anaerobic digester gas." Mr. Wason, plaintiffs' expert, testified that he does work with fuel cell projects over wastewater treatment plants, through his work with Carollo Engineers. Mr. Wason assisted his client SJ-1 in securing California state Self-Generation Incentive Program funding by sending a letter to the state government in support of the SJ-1 project's application. Mr. Wason emphasized at trial that his entire career of forty years has been "working on wastewater treatment plants that are generating energy." Nonetheless, all the witnesses took oaths to tell the truth, and their credibility was reviewed by this court during trial. Mr. Leo repeated at trial that his testimony was truthful and not impaired by the indirect benefit FuelCell Energy may receive from the outcome of the case. Mr. Wason also testified that his prior role in the SJ-1 project would not impair his ability to give truthful expert testimony. Mr. Wason further stated that his team does not traditionally become involved with the Section 1603 grant process as part of their standard scope of services, although sometimes they get involved with the state-level Self-Generation Incentive Program grants. Regarding the letter sent to the government of California, Mr. Wason stated that "it's very simple thing, so it's not something I have to go research it out, only spend one or two hours and I wrote that letter," and he re-clarified that the letter was to the state grant agency, not the federal Section 1603 grant program. To the same extent as plaintiffs' witnesses may indirectly stand to gain from a favorable outcome, defendant's expert witness could be said to gain from a favorable outcome in the above captioned case. Defendant's expert, Mr. Markell, also testified that he is acting as an expert witness on behalf of the government in another case related to the Section 1603 grant program in the United States Court of Federal Claims. See, e.g., Furstenberg v. United States, 219 Ct. Cl. 473, 475–77, 595 F.2d 603, 604–05 (1979) (finding, with regards to the "possible bias" of an expert witness who was testifying at trial on the valuation of a piece of art, yet also participating in an Art Advisory Panel, an expert body which values works of art for the IRS, that "[t]here is no reason to assume that, because an expert has expressed an opinion during confidential deliberations of a particular panel and has heard the views of the other experts, he will give anything other than his best independent expert judgment if called as a witness on the question of valuation. . . . Furthermore, viewing an expert's participation on the Art Advisory Panel as creating personal bias might unnecessarily discourage distinguished experts from participation on the panel, to the ultimate detriment of the Internal Revenue Service and the tax system, or might reduce the availability of expert witnesses at trial."). Outside of defendant's inferences in its briefs, defendant provides no compelling

evidence that plaintiffs' witnesses were unduly biased in their testimony regarding the RP1 and SJ-1 projects.

How Fuel Cells Operate

As explained by plaintiffs' expert witness, Mr. Wason, "Fuel cells are relatively recent" innovations that came to market in the past "about six to eight years. Before that, most of the technology in the wastewater industry" for burning biogas "had been internal combustion engines, microturbines and gas turbine[s]." Mr. Markell, defendant's expert witness, also stated: "Utilizing fuel cell power plants in conjunction with Biogas from anaerobic digesters is a relatively recent application," starting in 1997, and "[t]he most recent installations of fuel cell power plants in conjunction with anaerobic digesters started in 2008, with FCE [FuelCell Energy] taking the lead in providing larger fuel cell power plants."

Defendant's expert witness, Mr. Markell, a professional engineer, offered an introduction to how fuel cell systems operate in his expert report. According to Mr. Markell, fuel cells systems installed at wastewater treatment plants utilize "four primary systems: anaerobic digestion to produce Biogas, gas conditioning equipment to treat the Biogas, a fuel cell power plant to generate electricity, and a heat recovery system." Mr. Markell offered a diagram in his report of how the alleged "four primary systems" interact:

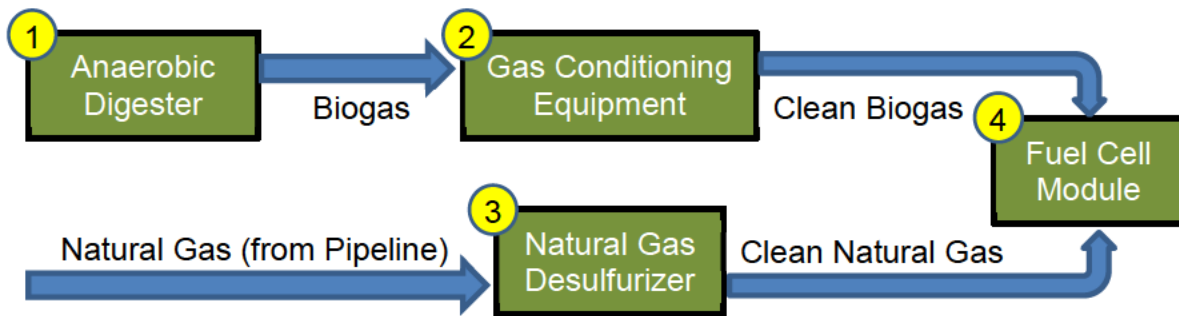


Plaintiffs' expert witness, Mr. Wason, offered an alternative diagram of how a fuel cell facility interacts in his expert report, but avoided using the term "Gas Conditioning Equipment" used by Mr. Markell. The plaintiffs' expert report included a diagram, reproduced below, which appears to have been modified from a diagram found in the record related to an Anaergia "**Case Study**" regarding the SJ-1 project in San Jose. (emphasis in original).

WASON DIAGRAM



Mr. Wason's diagram differs most significantly from Mr. Markell's diagram in three ways. First, what Mr. Markell calls the "Fuel Cell Power Plant," Mr. Wason calls the "Fuel Cell Stack." Second, Mr. Wason in his diagram does not try to project where natural gas would enter the system. Third, Mr. Wason in his diagram does not show the heat recovery unit, which is not at issue in this case. Based on a review of the record and the expert testimony offered, four of the key components, important in this case, are diagramed and described below, in the order shown.

*(1) Anaerobic Digester*

According to defendant's expert, Mr. Markell, "[i]n general, the anaerobic digester processes wastewater sludge to create Biogas." The parties stipulated that anaerobic digesters "utilize microorganisms to break down the solids portion of the wastewater sludge." Plaintiffs' expert witness, Mr. Wason, stated in his expert report that anaerobic digesters are used by wastewater treatment plants "for digesting sewage solids." He added at trial:

Most of the wastewater treatment plants in USA has a part of the process to deal with the sludge, municipal sludge. Sludge is the solids removed from the raw sewage through the primary and secondary treatment.

That sludge, before it can be disposed of, it has to be stabilized so that it does not stink. Okay? And then that sludge is fed to the digesters. And that is where the sludge is stabilized. Also its quantity is weighed,

pounds is reduced, and as a part of the side thing it produces anaerobic digester gas.

A website image, dated March 13, 2014, from the IEUA website, provided as a joint exhibit, also explained that anaerobic digesters are “treatment units that reduce[] the volume of organic matter by decomposition of the biosolids into relatively stable organic and inorganic compounds from which water will separate more readily. In several ways, anaerobic digestion functions similarly to the human stomach when it digests food.”

Mr. Sharma, from Anaergia, testified at trial that, from his experience, anaerobic digesters are present at some wastewater treatment plants:

Some wastewater treatment plants have anaerobic digesters. Some wastewater treatment plants might not have anaerobic digesters and they might have aerobic digesters where biogas is not made. And some wastewater treatment plants may not even have aerobic digesters. They might just dry the biosolids or dewater it and get rid of them.

Mr. Sharma added that one of the reasons to install an anaerobic digester is to produce and capture biogas that comes from the digestion process, which can be processed to create electricity, as well as to “reduce the amount of solids that have to be disposed.” Mr. Leo, from FuelCell Energy, testified that anaerobic digester biogas has about sixty percent methane, and “that’s where most wastewater treatment plants are,” while natural gas has about one hundred percent methane. Mr. Wason, plaintiffs’ expert witness, further explained in his expert report that the anaerobic digestion “process produces ADG [anaerobic digester biogas], which is approximately 60 to 65 percent methane, 35 to 40 percent Carbon Dioxide and about 1 percent of other gasses and contaminants,” which can be used by a fuel cell after it is treated.

According to the parties’ joint stipulation, the anaerobic digesters located at the IEUA and at the San Jose Water Pollution Control Plant “produce both ‘biosolids’ and ‘biogas,’ consisting of methane, other gaseous elements, and various contaminants. Biosolids are used to produce compost. Biogas may be discarded by burning it (in a process called ‘flaring’) or may be used as a fuel source.” In the above captioned case, the IEUA and San Jose Water Pollution Control Plant operated the anaerobic digesters, which produced anaerobic digester biogas, prior to the installation of the RP1 and SJ-1 projects. Defendant’s expert, Mr. Markell, explained in his report that, prior to the installation of the RP1 and SJ-1 fuel cell facilities, the IEUA and San Jose sites used “reciprocating engines” to burn the biogas created by the anaerobic digesters, for electricity. Mr. Markell added that a “reciprocating engine would simply replace the fuel cell power plant in the diagram [diagram is above, offered by Mr. Markell]. Reciprocating engines, which are similar to large automotive engines, are more tolerant of gas impurities, but still require some level of gas conditioning.”

(2) Gas Conditioning Equipment

The trial testimony indicates that fuel cell systems can and do operate on anaerobic digester biogas. Mr. Leo from FuelCell Energy explained that “[j]ust under half of our projects in California are running on digester gas,” and that about twenty percent of the company’s projects worldwide operate on digester gas, with the majority of the remaining projects operating on natural gas. Mr. Wason, plaintiffs’ expert witness, explained in his expert report that, significantly, “[r]aw ADG [anaerobic digester biogas] is not a clean gas like natural gas,” and can damage a fuel cell if used directly without treatment. Mr. Wason emphasized at trial that “[t]he gas coming from the anaerobic digester does not meet the fuel specifications of FuelCell Energy equipment,” it could “poison” a fuel cell module in under a day. Mr. Wason indicated that in terms of contaminants in the anaerobic digester gas, “the most important one is the hydrogen sulfide [sulfur], the second one is siloxane, the third one is water.” His report added that “Fuel cells can’t operate properly without removing hydrogen sulfide and siloxanes contaminants from ADG.” Mr. Leo, from FuelCell Energy, also testified that in its fuel cell, “[t]he electrodes are acting like catalysts. And if you were to send a bunch of sulfur over those electrodes, the sulfur molecules would occupy the normal catalytic reaction sites and the fuel cell would stop working.”

Mr. Wason testified that due to the contaminants in anaerobic digester biogas, it is generally standard to have gas conditioning equipment when working with biogas: “Some kind of gas conditioning has always been necessary on anaerobic digester gas because it comes out of the anaerobic digester as saturated gas. It’s saturated with water, so at a minimum you must remove water.” Mr. Wason also added that “many of the plants fall in jurisdiction of [California] Air Quality Management District, and many of those have introduced legislation or regulations to minimize the amount of hydrogen sulfide”

The parties jointly define “[g]as conditioning equipment,” to mean “[e]quipment used to clean, treat, and process contaminants (e.g., sulfur, hydrogen sulfide, VOC [volatile organic compounds], and siloxanes) from a fuel.” Mr. Wason, plaintiffs’ expert witness, stated that “gas conditioning equipment takes in the raw anaerobic digester gas coming from the digesters and cleans it up to a quality where it is required by FuelCell Energy fuel specifications.” Mr. Markell, defendant’s expert witness, in his expert report, stated that “[t]he gas conditioning system conditions the Biogas to meet the gas specifications for the fuel cell power plant as defined by FCE’s fuel specification.” Defendant’s expert report further explained: “H₂S and siloxanes are removed from the Biogas stream prior to use in a fuel cell power plant or a combustion engine. Failure to remove such contaminants will result in serious damage to the electricity generating equipment. As a result, utilizing gas conditioning equipment is an industry standard.” Mr. Settle, from NREL, also testified that gas conditioning equipment is necessary for a fuel cell to operate on biogas, and added: “I would suggest that if you’re going to take raw digester gas and you’re going to put it into a fuel cell that you have to clean it up with some sort of equipment in order for the fuel cell to maintain

good operation.” Mr. Markell added at trial that gas “conditioning systems are generally complicated, expensive, and difficult to maintain.”

The parties have jointly stipulated that “[t]he ‘gas conditioning equipment’ supplied by ESC for the RP1 Project consists of the following equipment, corresponding to ESC’s scope of supply, which are used to condition the digester gas from Inland Empire prior to use in the fuel cells:” “Iron Sponge System,” “Compheet Gas Treatment skid,” “Glycol Chiller skid,” “Hydrogen Sulfide Removal Vessels,” “Compheet Siloxane Removal Vessels,” “Sil-X Conventional Siloxane Removal Vessels and Guard Bed Removal Vessels,” “Sulfr Tri-X and Halogen Guard Vessels,” “ESC Control Panel,” and “Skid-mounted wiring, piping and instrumentation.” The parties stipulated that similar “gas conditioning equipment” was installed at the SJ-1 site, and was also supplied by ESC Corporation.

Diving deeper into the specific components, Mr. Wason, plaintiffs’ expert witness, explained that the “iron sponge,” one of the components of the RP1 and SJ-1 gas conditioning systems mentioned above, is designed “to remove hydrogen sulfide.” Mr. Wason’s testimony indicated that the siloxanes are removed through “two tanks full of activated carbon filters,” which appears from a review of the record to refer to the “Compheet Siloxane Removal Vessels,” mentioned above. Mr. Wason’s testimony also indicated that the “chiller,” which appears from the record to refer to the “Glycol Chiller skid,” “cools the anaerobic digester gas . . . and that takes most of the water out,” as well as some siloxane and hydrogen sulfide. Mr. Wason testified that a gas conditioning equipment also can have a compressor to prepare the gas for insertion into the fuel cell: “If the pressure of the gas coming from the anaerobic digester -- if that’s not high enough . . . so some of the plants will have a compressor or a blower to boost the gas pressure up.” Mr. Wason stated, however, that for the SJ-1 plant, no compressor was installed, because the “City of San Jose had compressors in their wastewater plant which compressed all of their digester gas to about 50 psi,” a statement with which Mr. Markell agreed. Mr. Wason added that although gas conditioning equipment is purchased, installation is still customized to the local project: “[T]here’s more than one way to do those things and we want it done a certain way, the way we have seen it successful in other plants.” Mr. Wason testified that gas conditioning equipment generally “comes on multiple skids, and then it’s piped and wired to wherever in the field.”

Mr. Sharma, from Anaergia, testified that responsibility for the gas conditioning equipment’s proper function lay with RP1 and SJ-1. Plaintiffs’ expert witness, Mr. Wason, explained in his expert report that the “City of San Jose and IEUA municipal agencies are not responsible for treating ADG [anaerobic digester gas]. UTS SJ-1 and RP1 must supply the gas conditioning equipment and clean ADG to make it suitable for fuel cell CHP [combined heat and power] plant use.”

(3) Natural Gas Desulfurizer

As indicated above, most FuelCell Energy fuel cells use natural gas as the sole or primary fuel source. Mr. Leo, from FuelCell Energy, testified that all of FuelCell Energy's fuel cells are capable of running on natural gas. Defendant's expert witness, Mr. Markell, added that "[t]he standard equipment provided with an FCE fuel cell power plant assumes operation on natural gas." In addition, both the FuelCell Energy fuel cell sales contracts to RP1 and SJ-1 stated that the fuel cells delivered are "typically fueled with natural gas." Mr. Sharma testified at trial that the RP1 and SJ-1 fuel cell facilities can run on natural gas, for example, when the gas conditioning equipment does not function and biogas is not available. Mr. Leo also testified that, even for fuel cell projects that are designed to operate on anaerobic digester biogas:

the preferred approach to biogas these days is to have a dual-fuel application where you're using natural gas at least as a backup fuel in the event that the biogas goes away.

So when you're doing that, you're dedicating the natural gas cleanup system to natural gas, and so you need another cleanup system to provide the biogas cleanup.

Nonetheless, according to the record, even natural gas needs pre-treatment before use in a fuel cell. Mr. Settle, from NREL, stated that, in his understanding, natural gas, when pulled from the field and sent in a natural gas pipeline, is conditioned to a certain extent to create "pipeline quality natural gas." Mr. Wason, plaintiffs' expert witness, added that natural gas from a pipeline is pre-treated to a certain specification by the utility: "there's the natural gas quality specs for natural gas coming through the pipeline's natural gas which it supplies to customers." Mr. Wason testified that pipeline quality natural gas is still insufficiently clean to be directly usable by a fuel cell: "sometimes the content of hydrogen sulfide could be a little bit higher, and if it happens, because it's so critical to the fuel cell that it could damage it, that's why they have the desulfurization equipment as a standard to protect the fuel cell." Mr. Leo, from FuelCell Energy, testified at trial that: "[e]ven natural gas fuels require different approaches for cleaning up." Mr. Wason testified that it is not FuelCell Energy's responsibility to operate on natural gas straight from the pipeline, therefore, the developer of the fuel cell facility itself has to clean the natural gas to meet the requirements set by FuelCell Energy.

The parties jointly define "desulfurizers" as "[e]quipment used to remove any sulfur contaminants from fuel prior to its injection into the fuel cell modules." At trial, the witnesses went into further detail about how a natural gas desulfurizer operates. Mr. Leo, from FuelCell Energy, described the natural gas desulfurizer that comes with a FuelCell Energy fuel cell assembly:

So in our natural gas fuel treatment train we have gas conditioning equipment that takes pipeline quality natural gas, which in the U.S. is usually very dry, so you don't have to worry about moisture. It has a little

bit of sulfur in it just to make it smell bad so that you know when it's leaking. We have to clean that out. And that's the main part of our natural gas cleanup system

Mr. Leo testified that gas conditioning equipment for anaerobic digester biogas, and natural gas desulfurizers, are both similar "[a]t a very high level in terms of stripping out the impurities."²² Mr. Leo described the biggest difference between the two systems as being:

Biogas is typically made available out of the digester with a lot of moisture that we would like to get rid of and a lot more sulfur than natural gas typically has, so -- and at very low pressure. Natural gas is usually available at pressure.

So a typical biogas conditioning system would both increase the pressure of the gas, remove the water from the gas, usually by chilling, and remove all that sulfur, in addition to some other things like siloxanes.

Mr. Markell, defendant's expert witness, also testified that the natural gas desulfurizers perform similar work as biogas gas conditioning equipment "[i]n the sense that they do provide some cleaning of the gas, yes, but not to the same level."

(4a) Fuel Cell Module

The parties have stipulated that "[f]uel cells convert a fuel into electricity through an electrochemical process, without combustion. Fuel cells can operate on various fuels, including biogas, if the inherent contaminants are removed to meet the fuel cell manufacturer's fuel specifications." Mr. Leo, from FuelCell Energy, explained the basics of fuel cell operation at trial:

[A]ll fuel cells work by reacting a fuel and oxygen, but they react it differently than fuel and oxygen are usually reacted. Usually you take fuel, you mix it with oxygen or air, and you ignite them and you make heat and use that heat to spin a turbine or to boil water to make steam to spin another kind of turbine.

And that is generally true, that if you take a fuel, a fuel that wants to react with air, and mix it with air and ignite them, you will get heat.

But what fuel cells do is they react the fuel and the air in separate compartments that are separated by an electrolyte. And when you do that, if you connect a wire between those two compartments, instead of getting

²² In his testimony, Mr. Leo, from FuelCell Energy, did not distinguish between the natural gas desulfurizers and biogas gas conditioning equipment, but instead often referred to both as "gas conditioning equipment."

heat, you'll get electricity. And it's a more direct way to convert the energy content of the fuel to electricity than in the thermomechanical means that are usually used.

Mr. Leo compared fuel cells to batteries at the trial:

If you look at a battery, inside a battery, say a nickel cadmium battery that you might buy at the store, there's nickel and there's cadmium. And if you were to mix those together, it would get hot. But because they're separated by an electrolyte layer, if you connect a circuit to them, instead of getting heat, you'll react them electrochemically, is the term, and you'll get electricity instead of heat.

Now, the difference between a battery and a fuel cell is that when you stick batteries in your flashlight, eventually the battery died because all the chemicals to support the electrochemical reaction are inside each battery. In a fuel cell, the chemicals are continually pumped in. Instead of nickel and cadmium, it's fuel and air. And you just keep pumping them in, and you'll keep getting electricity out.

Q. And what happens to the gas in that process?

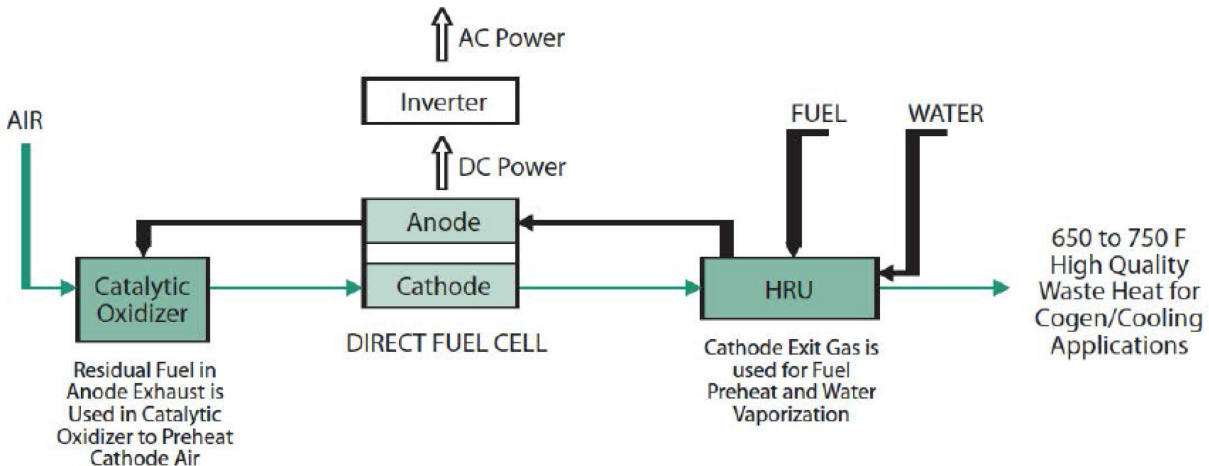
A. The fuel is -- in the case of our fuel cell specifically, methane is sent into the fuel cell stacks where it's converted to hydrogen, so the hydrogens in the methane get stripped off and you end up with hydrogen and CO₂.

That hydrogen reacts in one of the compartments of the fuel cell, which we call the anode, to produce electrons. And those electrons go out into the circuit and they get consumed at the cathode. And the cathode is where the air is reacted in a reaction that involves consumption of oxygen and consumption of those electrons that the anode made.

Mr. Leo also testified that fuel cells are less polluting sources of fuel: "Because there's no combustion, that's the -- that's one of the reasons why they're so clean. A lot of the pollution that comes from combusting a fuel is the result of the high flame temperature that makes soot-type particulates. It makes nitrogen oxides that are smog precursors." Mr. Leo stated that what exits a fuel cell module "would be a little bit of CO₂, water, and what's left of the oxygen in the air and the nitrogen that was in the air."

Turning specifically to the fuel cells used in this case, the fuel cells supplied by FuelCell Energy for the RP1 and SJ-1 facilities were molten carbonate-type fuel cells. As testified to by Mr. Leo, from FuelCell Energy, "[o]ur main commercial product line is a specific type of fuel cell called the molten carbonate fuel cell, which we call the Direct FuelCell because it has a feature that allows fuel to be sent directly to the stacks

instead of going through a separate reforming^[23] system. And that's our main commercial line." Mr. Markell, defendant's expert witness, stated in his report that "[m]olten carbonate fuel cells operate at relatively high temperatures (sometimes in excess of 1,200 degrees Fahrenheit) and can operate as high as 60 percent efficiency." Mr. Markell inserted into his report, which was provided to the court, a functional diagram of a molten carbonate fuel cell, taken from a report by FuelCell Energy:



(HRU stands for Heat Recovery Unit). Mr. Markell explained in his report: "The fuel cell takes in fuel and air, which react with a specifically designed anode and cathode, with an electrolyte (a molten carbonate solution) in between to develop an electrical current (DC power) similar to a battery."

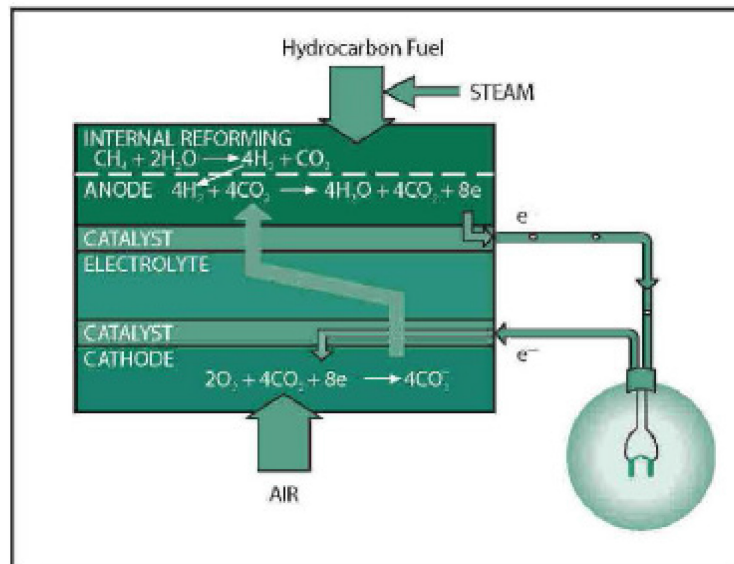
The FuelCell Energy report, referenced by Mr. Markell in his expert report and above, is titled "**Stationary Fuel Cell Power Systems with Direct FuelCell Technology Tackle Growing Distributed Baseload Power Challenge**," (emphasis in original), and goes into further detail about how molten carbonate fuel cells generate electricity through the anode and cathode, including the following:

Fuel and air reactions for the molten carbonate Direct FuelCell occur at the anode and cathode, which are porous nickel (Ni) catalysts. The cathode side receives oxygen from the surrounding air. As can be seen in Figure 1 [the below figure], hydrogen is created in the fuel cell stack through a reforming process, which produces hydrogen from the reforming reaction between the hydrocarbon fuel and water. The gas is then

²³ Mr. Leo later explained that "reforming" "is that process where we convert methane to hydrogen," because "almost all fuel cells want to consume hydrogen in their anode to make electricity." Mr. Leo added that "what's unique about our version of the fuel cell technology is that process occurs inside the fuel cell stack When you do it inside the fuel cell stack, the heat [required] comes from waste heat from the fuel cell reaction, so it's a much more efficient way to do it." Mr. Leo added that this is why the model sold by FuelCell Energy is called "Direct FuelCell."

consumed electrochemically in a reaction with carbonate electrolyte ions that produces water and electrons.

The electrons flow through an external circuit to provide the power to the fuel cell load, and then return to be consumed in the cathode electrochemical reaction. The O₂ supplied to the cathode, along with CO₂ recycled from the anode side, reacts with the electrons to produce carbonate ions that pass through the electrolyte to support the anode reaction. The electron flow through the external circuit produces the desired power (DC current). An inverter^[24] is used to convert the DC output to AC.



Mr. Markell added in his report:

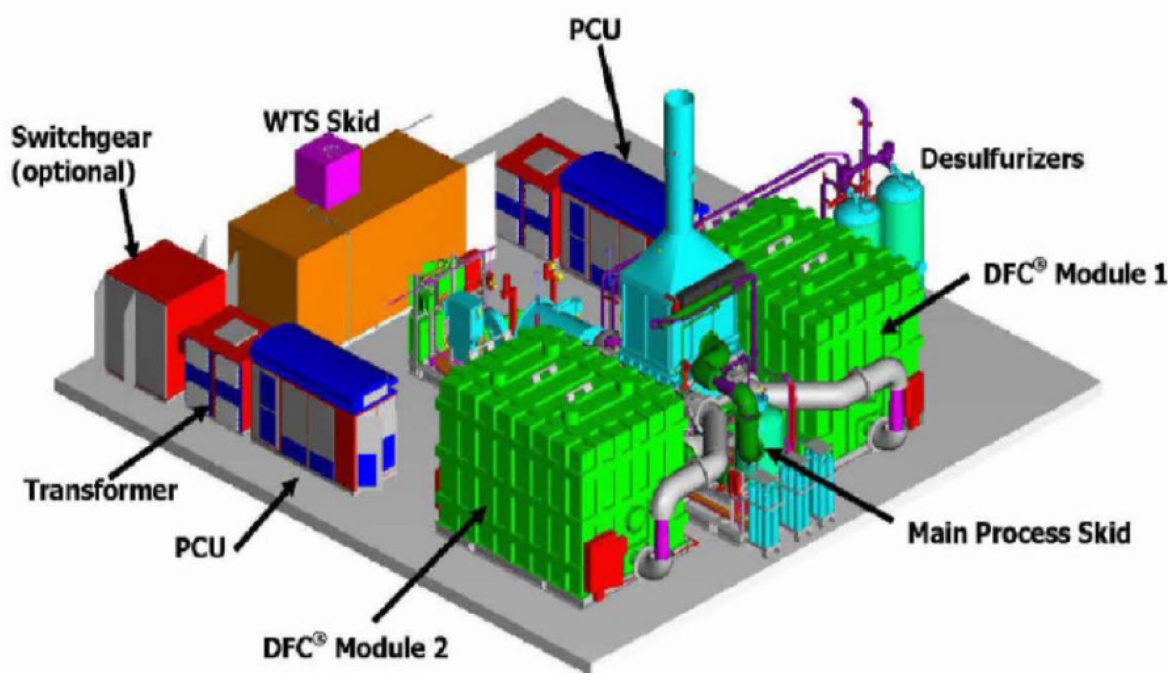
The electricity generated by a single fuel cell is generally in the range of 0.5 volts to 1.0 volts, which is too small to be a power source. In order to increase the voltage of the output of the fuel cell, a number of individual fuel cells are combined or “stacked” to create a fuel cell stack.

Mr. Markell stated in his expert report that for the fuel cells operated by RP1 and SJ-1, “[e]ach fuel cell module consists of four separate fuel cell stacks. FCE specifies four fuel cell stacks per fuel cell module.”

²⁴ Mr. Leo stated that since fuel cells produce direct current power, and the electricity grid operates on alternating current, the power is converted from direct current to alternating current “in a device that’s called an inverter.”

(4b) Fuel Cell Assembly

Mr. Leo, from FuelCell Energy, discussed at trial the other components that can go into a fuel cell assembly, particularly those supplied by FuelCell Energy, as part of its “standard scope of supply.” Mr. Leo explained that FuelCell energy delivered “one DFC3000 to RP1 and the DFC1500 to San Jose.” The parties have stipulated that “[t]he pieces of equipment provided by FuelCell Energy as part of its standard scope of supply for the DFC3000,” delivered to RP1, “are shown in the figure below:”



The parties further stipulated that the “standard scope of supply” for the DFC3000 fuel cell assembly, as shown above, includes the following “fuel cell equipment:”

- “Two fuel cell modules. . . The fuel cell module is the individual piece of equipment that actually performs the electrochemical conversion of the fuel into DC electric power for the DFC3000.”
- “Desulfurization skid [natural gas desulfurizers] . . . In the RP1 Project, the natural gas supply feeds into the desulfurizers, which are used to remove any sulfur contaminants in natural gas that do not meet the fuel specification.” Mr. Leo from FuelCell Energy added at trial that “they’re not mounted on the main process skid. They’re separate,” although they are part of the standard scope of supply.

- “Main Process skid. The Main Process skid is the internal heat recovery unit (not the waste heat recovery equipment . . .) that heats up the fuel and water used in the fuel cell modules”
- “Water Treatment System (‘WTS’) skid. The WTS skid treats the water used in the fuel cells and removes contaminants and impurities. The WTS skid includes the control panel for the fuel cells”
- “Two Power Conditioning Units (‘PCUs’). The PCUs convert the DC power produced in the fuel cell modules into utility grade AC power. There is one PCU for each fuel cell module in the RP1 Project.”
- “Transformer. The transformer is used to increase the voltage of the AC current.”

(all internal citations omitted). The parties jointly stipulated that “FuelCell Energy also supplied the following additional equipment for the RP1 Project as part of its scope of supply,” although these components do not appear to be part of the “standard” scope of supply for the DFC3000: “Customer Data Interface Option,” “High Ambient (120F) Package,” “Customer Critical Bus,” “Load Leveler,” “Fuel Blending and Switching System,” “Inter-skid Cable Kit,” and “Switchgear.”

According to the parties, identical equipment was installed by FuelCell Energy at the SJ-1 site, although in a different configuration, and, in particular, with only one fuel cell module and power conditioning unit as opposed to two. The parties also stipulated that the “Switchgear” was part of the standard scope of supply for the DFC1500, while it was additional equipment for the DFC3000. Mr. Leo, from FuelCell Energy, confirmed at trial that the pieces of equipment for the DFC1500, installed at SJ-1, were “[e]ssentially the same” as the pieces of equipment for the DFC3000 installed at the RP1 site, and that his testimony as related to the RP1 site pertained to the SJ-1 site as well. Mr. Wason, plaintiffs’ expert witness, also stated that the RP1 and SJ-1 projects were identical except “there’s two of those [fuel cell] modules instead of one, so instead of one 1400 [kilowatt module], it’s two 1400 [kilowatt modules] put together.”

Mr. Leo, from FuelCell Energy, explained that the company’s fuel cell projects are generally “turnkey projects,” which means that the company provides “the equipment, the installation services, a complete wrap of a project for a customer, so the customer doesn’t have to install it.” Mr. Leo also explained that in a turnkey project FuelCell Energy offers maintenance services that involve “complete operation services of the power plant. The customer literally has to do nothing. We monitor the power plants remotely. If the power plants need attention, we can adjust their output remotely or send technicians to the site. We completely operate the power plant.” Although Mr. Leo testified at trial that “[a]ny fuel cell power plant project would be a turnkey project,” Mr. Leo also testified that FuelCell Energy has never been involved in a turnkey project involving anaerobic digester gas, indicating that they did not perform the turnkey projects for the RP1 and SJ-1 projects. A review of the record indicates that although

San Jose and the IEUA sought “turnkey” projects in their solicitations, in the case currently before the court, HDR Design-Build and Otto H. Rosentreter Co. acted as the EPC contractors,²⁵ not FuelCell Energy.²⁶

Section 1603

The genesis of this suit lies in Section 1603 of the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat 115. Division B, Title 1 of the Act is titled the “American Recovery and Reinvestment Tax Act of 2009.” See ARRTA § 1000. Section 1603 of the ARRTA, as amended by section 707 of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, Pub. L. No. 111-312, § 707, 124 Stat 3296, 3312,²⁷ states in relevant part:

(a) IN GENERAL.—Upon application, the Secretary of the Treasury shall, subject to the requirements of this section, provide a grant to each person who places in service specified energy property to reimburse such person for a portion of the expense of such property as provided in subsection (b). No grant shall be made under this section with respect to any property unless such property—

(1) is placed in service during 2009, 2010, or 2011, or

²⁵ The parties jointly defined EPC Contractor as “[t]he contractor providing EPC services” and EPC as “[e]ngineering, procurement, and construction (a standard type of contract).”

²⁶ Mr. Markell, defendant’s expert witness, stated in his report that the “final component utilized by the Projects is a heat recovery system. A molten carbonate fuel cell as utilized in the DFC1500 [used by SJ-1] and DFC3000 [used by RP1] fuel cell power plant will give off excess heat that can be captured by a heat recovery system and then used to generate steam or hot water.” Mr. Sharma explained at trial that a heat recovery unit can “increase the efficiency of the entire power plant.” Plaintiffs’ expert report did not discuss the heat recovery unit, however, the heat recovery unit is not at issue in this case.

²⁷ Section 707 of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 amended Section 1603 by extending the grants available under the section to projects “placed in service” through 2011, whereas the original American Recovery and Reinvestment Tax Act of 2009 only covered projects “placed in service” up through 2010. See Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, Pub. L. No. 111-312, § 707, 124 Stat. 3296, 3312. Section 407(c)(2) of the American Taxpayer Relief Act of 2012 also amended Section 1603 by striking “placed in service” from paragraphs (1) and (2) of subsection (a) and inserting “originally placed in service by such person.” See American Taxpayer Relief Act of 2012, Pub. L. No. 112-240, § 407(c)(2), 126 Stat. 2313, 2342.

(2) is placed in service after 2011 and before the credit termination date with respect to such property, but only if the construction of such property began during 2009, 2010, or 2011.

(b) GRANT AMOUNT.—

(1) IN GENERAL.—The amount of the grant under subsection (a) with respect to any specified energy property shall be the applicable percentage of the basis of such property.

(2) APPLICABLE PERCENTAGE.—For purposes of paragraph (1), the term “applicable percentage” means—

(A) 30 percent in the case of any property described in paragraphs (1) through (4) of subsection (d), and

(B) 10 percent in the case of any other property.

(3) DOLLAR LIMITATIONS.—In the case of property described in paragraph (2), (6), or (7) of subsection (d), the amount of any grant under this section with respect to such property shall not exceed the limitation described in section 48(c)(1)(B), 48(c)(2)(B), or 48(c)(3)(B) of the Internal Revenue Code of 1986, respectively, with respect to such property.

(c) TIME FOR PAYMENT OF GRANT.—The Secretary of the Treasury shall make payment of any grant under subsection (a) during the 60-day period beginning on the later of—

(1) the date of the application for such grant, or

(2) the date the specified energy property for which the grant is being made is placed in service.

(d) SPECIFIED ENERGY PROPERTY.—For purposes of this section, the term “specified energy property” means any of the following:

(1) QUALIFIED FACILITIES.—Any qualified property (as defined in section 48(a)(5)(D) of the Internal Revenue Code of 1986) which is part of a qualified facility (within the meaning of section 45 of such Code) described in paragraph (1), (2), (3), (4), (6), (7), (9), or (11) of section 45(d) of such Code.^[28]

²⁸ Mr. Settle from NREL added at trial that the Section 1603 grant program references “two specific sections in the tax code, [I.R.C.] section 45, production tax credit, and section 48, investment tax credit.” Mr. Settle added:

(2) QUALIFIED FUEL CELL PROPERTY.—Any qualified fuel cell property (as defined in section 48(c)(1) of such Code).

(3) SOLAR PROPERTY.—Any property described in clause (i) or (ii) of section 48(a)(3)(A) of such Code.

(4) QUALIFIED SMALL WIND ENERGY PROPERTY.—Any qualified small wind energy property (as defined in section 48(c)(4) of such Code).

(5) GEOTHERMAL PROPERTY.—Any property described in clause (iii) of section 48(a)(3)(A) of such Code.

(6) QUALIFIED MICROTURBINE PROPERTY.—Any qualified microturbine property (as defined in section 48(c)(2) of such Code).

(7) COMBINED HEAT AND POWER SYSTEM PROPERTY.—Any combined heat and power system property (as defined in section 48(c)(3) of such Code).

(8) GEOTHERMAL HEAT PUMP PROPERTY.—Any property described in clause (vii) of section 48(a)(3)(A) of such Code.

Such term shall not include any property unless depreciation (or amortization in lieu of depreciation) is allowable with respect to such property.

...

So section 45 essentially covers the production tax credit, and that includes projects like wind, wind energy projects, biomass projects, projects dealing with landfill gas, projects that are fed with municipal solid waste, and so forth.

And section 48 is dealing with projects such as solar electricity, solar thermal, fuel cells, microturbines, combined heat and power, and so forth.

A review of Section 1603 indicates that grants made pursuant to Section 1603(d)(1) involve determinations of eligibility under I.R.C. § 45, titled “Electricity produced from certain renewable resources, etc.,” generally known as a Production Tax Credit. On the other hand, grants made pursuant to Section 1603(d)(2) through (8) involve determinations of eligibility under I.R.C. § 48, titled “Energy credit,” generally known as an Investment Tax Credit.

(h) DEFINITIONS.—Terms used in this section which are also used in section 45 or 48 of the Internal Revenue Code of 1986 shall have the same meaning for purposes of this section as when used in such section 45 or 48. Any reference in this section to the Secretary of the Treasury shall be treated as including the Secretary's delegate.

(capitalization in original).

Under Section 1603(a), grants are awarded to those entities who place in service a “specified energy property,” assuming other size and procedural requirements were met. See Section 1603(a). The grant “with respect to any specified energy property” is equal to an “applicable percentage of the basis of such property.” See Section 1603(b)(1). The percentage of the grant, either ten or thirty percent of the project's cost basis, depends upon what type of “specified energy property” the grant is for. See Section 1603(a), (b)(2). In calculating cost basis for a project, Mr. Settle from NREL testified that “the basis of the project is generally the amount of the investment in the project, the tangible personal property that's integral to producing the electricity, for each of those technologies.”

Qualified Fuel Cell Property

When plaintiffs applied for Section 1603 grants, they applied for a grant under the “Fuel cell property” option, which was one of the eight facility types made available on the application by the government as eligible for a grant under Section 1603(d). The application allowed only one choice to be indicated for the type of specified energy property. Under Section 1603(d)(2), a thirty percent grant is available for:

QUALIFIED FUEL CELL PROPERTY.—Any qualified fuel cell property (as defined in section 48(c)(1) of such Code).^[29]

(capitalization in original). The statute at 26 U.S.C. (I.R.C.) § 48(c) (2012), states in relevant part:

(c) Definitions

For purposes of this section—

(1) Qualified fuel cell property

(A) In general

²⁹ Section 48 of the Internal Revenue Code, “Energy credit,” also known as an Investment Tax Credit, is part of Chapter 1, Subchapter A, Part IV, Subpart E of the Internal Revenue Code, “Rules for Computing Investment Credit.” Subpart E covers I.R.C § 46, “Amount of credit,” through I.R.C. § 50, “Other special rules.”

The term “qualified fuel cell property” means a fuel cell power plant which—

(i) has a nameplate capacity of at least 0.5 kilowatt of electricity using an electrochemical process, and

(ii) has an electricity-only generation efficiency greater than 30 percent.

(B) Limitation

In the case of qualified fuel cell property placed in service during the taxable year, the credit otherwise determined under subsection (a) for such year with respect to such property shall not exceed an amount equal to \$1,500 for each 0.5 kilowatt of capacity of such property.

(C) Fuel cell power plant

The term “fuel cell power plant” means an integrated system comprised of a fuel cell stack assembly and associated balance of plant components which converts a fuel into electricity using electrochemical means.

(D) Termination

The term “qualified fuel cell property” shall not include any property for any period after December 31, 2016.

(emphasis in original).

The parties jointly state that the issue before the court is “whether gas conditioning equipment installed by plaintiffs as part of the RP1 and SJ-1 projects is included within the statutory definition of ‘qualified fuel cell property’” under Section 1603(d)(2), “which refers to 26 U.S.C. § 48(c)(1).” In their post-trial filings, the parties have not relied on any case law that directly supports their positions and have previously indicated that this is a case of first impression. Under I.R.C. § 48(c)(1), “fuel cell power plant” is defined as:

(C) Fuel cell power plant

The term “fuel cell power plant” means an integrated system comprised of a fuel cell stack assembly and associated balance of plant components which converts a fuel into electricity using electrochemical means.

Id. (emphasis in original). This definition can be read as having three distinct parts:

1. “integrated system,”
2. “comprised of a fuel cell stack assembly and associated balance of plant components,”
3. “which converts a fuel into electricity using electrochemical means.”

Integrated System

Plaintiffs contend that the term “integrated system” within I.R.C. § 48(c)(1)(C) is broadly defined and does not exclude gas conditioning equipment from the definition of “fuel cell power plant.” Plaintiffs state: “[t]he statute [I.R.C. § 48] does not separately define the term ‘integrated system.’ The term, however, is defined by the language that immediately follows—‘comprised of a fuel cell stack assembly and associated balance of plant components.’” Defendant, similarly, does not contend that gas conditioning equipment is excluded from the term “integrated system” in the “fuel cell power plant” definition, but instead asserts that the term is vague and, thus, must be clarified by other parts of the definition. Defendant states, “[a]t trial, the witnesses agreed that the term ‘integrated’ is vague.” Defendant adds that, in a fuel cell facility, all the components, from the wastewater treatment plant to the heat recovery unit, “are, in some fashion, integrated. Such a vague term is given substance only by the rest of the statutory language.” A review of statute and case law likewise does not provide a definition of “integrated system.” Looking to the trial testimony, Mr. Markell, defendant’s expert witness, stated that there is no technical definition for the word “integrated.” Mr. Leo from FuelCell Energy likewise indicated at trial that there can be many “integrated systems” within a single facility. Mr. Leo’s testimony also indicated that the gas conditioning equipment and fuel cells are interconnected, stating “[i]t’s integrated into the system. We provide power to it. We get control signals from it. It’s integrated into our system.” It would, therefore, appear that whether or not gas conditioning equipment is part of a “fuel cell power plant” is not possible just by looking at the term “integrated system.”

Despite the vagueness in the definition of “integrated system,” plaintiffs try to give substance to the term. Plaintiffs first point the court to the Treasury Regulations, and, in particular, 26 C.F.R. (Treas. Reg.) § 146-5 (2014).³⁰ Treasury Regulation § 1.46-5(e)(3)(ii) states: “Property is part of an integrated unit only if the operation of that item is essential to the performance of the function to which the unit is assigned.” Noting the phrase “essential to the performance of the function to which the unit is assigned,” plaintiffs contend that a system is integrated if it is “functionally interdependent.” Treas. Reg. § 146-5(e)(3)(ii). Plaintiffs quote from a decision issued by the United States Court

³⁰ As discussed more below, Treasury Regulation § 1.46-5, “Qualified progress expenditures,” clarified I.R.C. § 46, “Amount of credit,” a neighboring provision of the Internal Revenue Code to I.R.C. § 48. Defendant takes issue with plaintiffs’ reference to Treasury Regulation § 1.46-5, as is discussed further below.

of Appeals for the Third Circuit, Armstrong World Industries, Inc. v. Commissioner, which states:

“In sum, courts appear to agree that individual components will be considered as a single property for tax purposes when the component parts are functionally interdependent—when each component is essential to the operation of the project as a whole and cannot be used separately to any effect. The converse, thus, should be equally valid in this case. Accordingly, if a project has component parts which can function as planned in a wholly *independent* manner, then a court may find that each component is a ‘property . . . placed in a condition or state of readiness and availability for a specifically assigned function.’”

Armstrong World Indus., Inc. v. Comm’r, 974 F.2d 422, 434 (3d Cir. 1992) (quoting Consumers Power Co. v. Comm’r, 89 T.C. 710, 723 (1987)) (emphasis and modification in Armstrong World Indus., Inc. v. Comm’r). Plaintiffs also cite to Hawaiian Independent Refinery, Inc. v. United States, 697 F.2d 1063, 1069 (Fed. Cir.), cert. denied, 464 U.S. 816 (1983), Public Service Co. v. United States, 431 F.2d 980 (10th Cir. 1970), and Consumers Power Co. v. Commissioner, 89 T.C. 710, for the proposition that a project is viewed as “integrated” by courts “when the component parts are functionally interdependent.” (quoting Armstrong World Indus., Inc. v. Comm’r, 974 F.2d at 434). Plaintiffs state that, in the case currently before this court, “[t]he gas conditioning equipment and fuel cell equipment for the two Projects are ‘functionally interdependent.’”³¹

Plaintiffs argue that whether a component is part of an “integrated system” should depend on the interdependence or necessity of that component to the system.

³¹ Although the principal cases plaintiffs cite, Armstrong World Industries, Inc. v. Commissioner, 974 F.2d 422, Hawaiian Independent Refinery, Inc. v. United States, 697 F.2d 1063, Public Service Co. v. United States, 431 F.2d at 980, and Consumers Power Co. v. Commissioner, 89 T.C. 710, are relevant for resolution of the case currently before the court, they do not use the phrase “integrated system.” The cases indicate that the Internal Revenue Code views two items as “integrated” “when each component is essential to the operation of the project as a whole and cannot be used separately to any effect.” See Armstrong World Indus., Inc. v. Comm’r, 974 F.2d at 434; see also Hawaiian Indep. Refinery, Inc. v. United States, 697 F.2d at 1069 (noting that two parts of a tanker-pipeline facility “in conjunction with the refinery itself, functionally form a single property” (internal quotation omitted)); Pub. Serv. Co. v. United States, 431 F.2d at 983–84 (concluding that all the elements of a power plant were placed in service at the same time as one property, because “all of them properly fitted together by the contractor, together with the building, constituted a complete unit which was operational and served the purpose intended by appellee.”); Consumers Power Co. v. Comm’r, 89 T.C. at 726 (“In our opinion, based on the foregoing, the Ludington Plant must be viewed as one integrated unit because the physical plant and the reservoir operate simultaneously and as a unit in order to produce electrical power.”).

According to the plaintiffs, the record indicates that the gas conditioning equipment is necessary to the operation of the RP1 and SJ-1 facilities on anaerobic digester biogas. Mr. Wason, plaintiffs' expert witness, emphasized multiple times at trial that a fuel cell system, designed to operate on anaerobic digester biogas "cannot work without the gas conditioning, so gas conditioning is an essential part of an anaerobic digester gas fuel cell power plant." Mr. Wason also noted that the gas conditioning equipment and fuel cells are functionally connected: "their [gas conditioning equipment] operation has to be coordinated with the fuel cell, because if some of this is not working properly, you want to shut down or you want to switch it to natural gas until you find what the problem is." Mr. Markell's expert report for the defendant explained that biogas contains many contaminants, and "[f]ailure to remove such contaminants will result in serious damage to the electricity generating equipment. As a result, utilizing gas conditioning equipment is an industry standard." Mr. Settle, from NREL, stated: "I would suggest that if you're going to take raw digester gas and you're going to put it into a fuel cell that you have to clean it up with some sort of equipment in order for the fuel cell to maintain good operation."

Defendant responds that "[a]s with the term 'integrated', 'functional interdependence' is a loose term that could apply to almost anything at the entire wastewater treatment plant. The digesters, for example. [sic] are functionally interdependent with the projects' heat recovery systems, which ensure that the microbes have a suitable environment." Defendant, however, also admits that "integrated system" does not, by itself, exclude gas conditioning system from the ambit of "fuel cell power plant." See I.R.C. § 48(c)(1)(C).

Balance of Plant Components

Within the definition of a "fuel cell power plant" under I.R.C. § 48(c)(1)(C), plaintiffs place the most emphasis on the phrase that follows "integrated system," the phrase "comprised of a fuel cell stack assembly and associated balance of plant components." Plaintiffs state: "[t]he evidence demonstrates that the gas conditioning equipment is integral balance of plant for the fuel cell power plant." Plaintiffs contend that "balance of plant" is a broadly defined term that incorporates the gas conditioning equipment. According to plaintiffs, their expert witness, "Mr. Wason testified that term 'balance of plant' means 'the rest of the plant. It's the rest of the plant which is needed for this plant to work properly,'" Plaintiffs add that defendant's expert witness, "Mr. Markell similarly testified that the term 'balance of plant' is 'a generally accepted industry term' and defined that term broadly as 'everything else.'" Plaintiffs also note that Mr. Leo, from FuelCell Energy, is "an industry insider" with "almost 30 years experience in the fuel cell industry" and point to Mr. Leo's testimony that a fuel cell power plant "balance of plant" means all that "is required to make the stacks operate based on the available fuel." Plaintiffs also note that the testimony of Mr. Sharma is relevant as a "fuel cell industry insider and an officer of the owner of the Projects," and that Mr. Sharma noted "there is a clear boundary where the gas comes in and electricity goes out or hot water goes out. That's the boundary. Everything on the other side [sic] is the fuel cell plant," and, therefore, balance of plant.

Defendant initially contends that the term “‘Balance of plant’ is no more useful” than “integrated system” to determine the meaning of the statute, and that “neither term, on its own, can provide a boundary to the statutory definition. That must come from the operative phrase ‘converts a fuel to electricity.’” Defendant adds: “As plaintiffs’ expert stated, ‘balance of plant’ just means the ‘rest of it.’ In other words, one must define plant before one can define balance of plant.” (internal citation omitted). Defendant also adds that “[e]ven the Glossary from the U.S. Energy Information Administration, referred to by plaintiffs, includes a similarly vague definition of ‘plant’: ‘A term commonly used either as a synonym for an industrial establishment or a generating facility or to refer to a particular process within an establishment.’” (citations omitted). According to defendant, however, a “plant” within I.R.C. § 48(c)(1)(C) must be restricted “to the system that converts fuel to electricity.”

The trial testimony supports that the phrase “balance of plant” is a broadly defined term that would not, upon an initial reading, prevent gas conditioning equipment from falling under its umbrella. As noted above, the experts for both the plaintiffs and defendant, Mr. Wason and Mr. Markell, at times indicated that “balance of plant” means simply, “the rest of the plant” or “everything else.” As Mr. Wason, plaintiffs’ expert witness, emphasized:

This is so straightforward. I know we’ve been spending a lot of time here, but the overall principle is so simple, you know. This needed certain quality of gas. The raw gas is too dirty for this application. Without this equipment, fuel cell cannot work, so how could somebody design a fuel cell without it, how could somebody question that this is not the balance of the plant. It’s just – I’m surprised.

Mr. Wason stated that “without this [the gas conditioning equipment] you can’t meet the fuel specs. Therefore, you can’t run without it. Therefore, it’s a part of this plant. It is a balance of the plant.” Mr. Wason also discussed prior anaerobic digester biogas-fed fuel cells that had failed because they did not have effective gas conditioning equipment: “And that’s one of the history of the UTC power fuel cells which have failed in Cincinnati and New York because all of them had a deficient gas conditioning equipment.” Mr. Markell, defendant’s expert, agreed that “balance of plant” is a broad term and is defined as “a generally accepted industry term that describes everything else.” As noted above, both Mr. Sharma, from Anaergia, and Mr. Leo, from FuelCell Energy, also testified that, based on their experience, “balance of plant” covers everything in the fuel cell facility that helps the fuel cells to operate on anaerobic digester biogas. Mr. Leo added that “balance of plant” is not an imprecise term simply because it is broad: “so when we use the term, we mean a very specific thing, which is all the non-stack stuff that is required for the fuel cell to operate.”

Although defendant admits that “balance of plant” is a broadly defined term, defendant presents, albeit scattered throughout its briefs and trial testimony, three separate arguments for why it believes “balance of plant” as used in I.R.C. § 48(c)(1)(C)

is nonetheless limited, so as to not cover the gas conditioning equipment installed by RP1 and SJ-1. Defendant, first, contends that the gas conditioning equipment is not “balance of plant,” but instead, “balance of project,” because “balance of plant” refers to the narrow set of components that relate to the fuel cell module. In support, defendant points to Mr. Markell’s expert testimony for the defendant, as well as the FuelCell Energy fuel cell sales and service contracts, which provide a definition of “balance of plant” that encompasses only the components provided by FuelCell Energy, and not the components provided by other manufacturers (such as the gas conditioning equipment, supplied by ESC Corporation). Second, defendant contends that “balance of plant” only refers to what is required for the fuel cells to operate on natural gas, and does not include components necessary to enable the RP1 and SJ-1 facilities to operate, as intended contractually, on anaerobic digester gas. According to defendant, plaintiffs’ argument “that the gas conditioning equipment is necessary to operate their projects as intended is simply beside the point. The statute contains no reference to the intended purpose of a project or even to alleged contractual necessity.” Third, defendant points to the phrase following “balance of plant components” in the definition of “fuel cell power plant” under I.R.C. § 48(c)(1)(C), the phrase “which converts a fuel into electricity.” Defendant contends this phrase limits the definition of “balance of plant” to exclude biogas gas conditioning equipment, because this equipment “does not convert a fuel to electricity; it cleans biogas such that it can be used as a fuel in the fuel cell.” See I.R.C. § 48(c)(1)(C).

Defendant argues that, according to Mr. Markell’s testimony and the FuelCell Energy sales and service contracts, “balance of plant” refers only to what was directly sold to RP1 and SJ-1 by FuelCell Energy. Defendant states: “Under its [the FuelCell Energy sales and services contracts] definitions, the ‘fuel cell power plant’ is its fuel cell equipment, and the balance of plant is everything it provides other than the fuel cell module. It does not include the gas conditioning equipment.” In support of this view, Mr. Markell, defendant’s expert witness, testified at trial that “balance of plant” depends on the meaning of the word “plant.” Mr. Markell explained at trial: “Typically in the power industry you have what’s called a power island. That’s the major portion that produces power. And in this case it would actually be the fuel cell modules that produce power . . . ,” referring to the fuel cell modules supplied by FuelCell Energy. Mr. Markell stated, “[i]n this case, really it’s the fuel cell modules that is the power island.” Mr. Markell concluded, therefore, that the “power island” is the “plant” in “balance of plant,” and, therefore, “balance of plant” should only relate to the fuel cell module. As opposed to the “balance of plant” for the fuel cell module, Mr. Markell testified at trial that the remaining equipment at the RP1 and SJ-1 sites, including the gas conditioning equipment, relate to “the overall project,” and should be called “balance of project,” not “balance of plant.”

On cross-examination, however, Mr. Markell stepped back from his differentiation of “plant” and “project.” Mr. Markell was asked to discuss the definition of “plant” and “balance of plant” with regards to other types of energy facilities, not just fuel cells. Mr. Markell testified that although a hydropower project may have numerous suppliers and systems, there is just one hydropower “plant.” Additionally, with nuclear power plants,

although there would be multiple systems involved, Mr. Markell testified that it would be defined as one “plant,” as long as they are owned by the same party. Regarding a coal-fired power plant, Mr. Markell stated that the “scrubber unit,”³² a unit similar in function to gas conditioning equipment, would be part of the coal plant “balance of plant,” not balance of project. Mr. Markell then admitted at trial that “project” is sometimes used interchangeably in the industry with the term “plant.” He also testified that “systems,” and “facility” can sometimes be used interchangeably with “project” and “plant” as well.

In addition, defendant’s expert, Mr. Markell, appears to have contradicted himself in his usage of plant and project between his expert report and trial testimony. In his expert report, Mr. Markell stated that the “power plant and the gas condition system are two separate discrete systems or two separate ‘Plants.’” Mr. Markell however, later testified at trial:

Q. Are you providing the opinion that there’s more than one plant in the projects here in this case?

A. I am not, no. You have the fuel cell power plant, so you have one plant, one project.

When approached on this at cross-examination, he stated: “Actually, it looks like I was mistaken, but ‘Plants’ being in quotes is -- just means it’s kind of a general term.” In opposition to Mr. Markell’s testimony, Mr. Wason testified that he was not aware of any industry definition that would refer to the digester gas condition equipment and the fuel cell assembly as two separate plants, or projects.

Mr. Markell, defendant’s expert, also discussed the FuelCell Energy fuel cell contracts, which defendant alleges define “balance of plant” as not including gas conditioning equipment. In Mr. Markell’s expert report, he stated:

Based on the terminology used by FCE to define the fuel cell power plant in their sales agreements, it is my engineering interpretation that “Plant” for the Projects only includes the equipment provided by FCE. Therefore, it is my opinion that the gas conditioning equipment would not be included in the BOP [balance of plant], since it is not provided by FCE and would not be considered part of the “Plant.”

³² Although “scrubber unit” is not defined by the parties or in the record, the United States Energy Information Administration “**GLOSSARY**” states: “**Flue gas desulfurization:** Equipment used to remove sulfur oxides from the combustion gases of a boiler plant before discharge to the atmosphere. Also referred to as scrubbers. Chemicals such as lime are used as scrubbing media.” See F, Glossary, U.S. Energy Info. Admin., <http://www.eia.gov/tools/glossary/index.cfm?id=F> (last visited March 31, 2015).

The definition of “Balance of Plant” in the FuelCell Energy sales and service contract is: “all components of the Plant other than the Fuel Cell Module, as specified by Seller from time to time in its DFC Specifications.” (emphasis in original). “Plant” is separately defined in the same document as “A carbonate-based fuel cell power plant utilizing Seller’s Direct FuelCell® technology.” At trial, plaintiffs’ witness from FuelCell Energy, Mr. Leo, suggested that the FuelCell Energy contracts definition of “balance of plant” does not include gas conditioning equipment. Mr. Leo testified that the word “Plant” in the FuelCell Energy contract refers to “[j]ust our scope of supply,” which does not include gas conditioning equipment. Plaintiffs argue that the term, “balance of plant” from the FuelCell Energy contracts does not represent the “balance of plant” for the fuel cell power plant as a whole, but instead covered a more limited “scope of supply” related to the FuelCell Energy sales and service contracts and that company’s responsibilities. Plaintiffs argue that the FuelCell Energy sales and service contracts relate to delivery of one piece of equipment for the fuel cell power plant, the fuel cell assembly, and must be viewed in that light.

The record before the court would appear to support plaintiffs’ contention that the term “balance of plant,” as used in the FuelCell Energy contracts, specifically refers to the contracts between FuelCell Energy and RP1 and SJ-1, and does not define “balance of plant” as the phrase is to be understood pursuant to I.R.C. § 48(c)(1)(C). Mr. Sharma, from Anaergia, testified at trial that he understood the term “balance of plant” as used in the FuelCell Energy contracts to relate “to their scope of services in their power plant,” and affirmed that the definition of “balance of plant” in those same contracts was “not intended by the parties to limit the full scope of what is a fuel cell power plant.”³³ (emphasis in original). Plaintiffs’ witness, Mr. Sharma, testified that, when referring to the warranty provided by FuelCell Energy, the warranty only covered the equipment the company, FuelCell Energy, provided, and not equipment supplied by other contractors, such as the gas conditioning equipment, which was supplied by ESC Corporation. This comment, however, appears not to have been offered regarding the definition of “balance of plant,” but rather with respect to warranty coverage. Mr. Leo, from FuelCell Energy, also commented that any references in the FuelCell Energy contracts to “balance of plant,” refer to the FuelCell Energy standard scope of supply. Mr. Leo added that any references to “plant” in the FuelCell Energy sales and service contracts refer to merely a “subset of the full plant.”³⁴

³³ Mr. Sharma also testified that he understood the scope of service in the FuelCell Energy services contract to be “[a]pproximately” similar to the scope of supply from the sales contract.

³⁴ Mr. Leo further indicated at trial that even though the gas conditioning equipment was provided by a separate supplier, ESC Corporation, and not in FuelCell Energy’s “scope of supply” for the RP1 and SJ-1 contracts, FuelCell Energy’s fuel cells for the RP1 and SJ-1 project were nonetheless still tailored to operate on anaerobic digester gas, and therefore considered and relied on the gas conditioning equipment provided by ESC Corporation. Mr. Leo added that FuelCell Energy has “standard options that are tailored

In addition, both Mr. Leo and Mr. Sharma indicated at trial that, had the contractual circumstances been different between RP1, SJ-1 and FuelCell Energy, the gas conditioning equipment could have fallen within the “scope of supply” and “balance of plant” of the FuelCell Energy sales and service contracts. Mr. Sharma testified at trial that FuelCell Energy could supply and service the gas conditioning equipment for either the RP1 or SJ-1 projects, if it was preferred. Mr. Sharma stated:

FuelCell Energy could have supplied the entire power plant or serviced the entire equipment. And in fact, we’ve had discussions with FuelCell Energy on several -- several times if they would take over servicing of the entire power plant. That would include the gas conditioning equipment and balance of plant, which they’re not servicing right now.

Mr. Leo further testified that, if requested, “[w]e offer to provide a complete either equipment supply or turnkey for digester gas,” and in such situations, “[w]e would provide the gas cleanup equipment [gas conditioning equipment].” Mr. Leo also stated that even if another supplier, instead of FuelCell energy were to provide the gas conditioning equipment, in a turnkey project, “[i]n fact, we would integrate it with the plant exactly the same way we would integrate one provided by us.”

In apparent agreement with plaintiffs’ witnesses, Mr. Markell, defendant’s expert witness, admitted at trial that his understanding of whether or not “balance of plant” would cover gas conditioning equipment could vary based on what was included in the FuelCell Energy contract. Mr. Markell testified, for example, that if FuelCell Energy and RP1 engaged in “an EPC [engineering, procurement, and construction] contract, then it may be different because that would change the overall function in the boundaries and most likely the fuel specification going into the project.” He added:

With an EPC contractor, if they’re doing the entire project, then they’re going to take responsibility of the biogas right as it leaves the digesters, and they will set the fuel definition as of that point when it comes out of the digesters, so in that sense it would redefine what the fuel cell power plant is.

Mr. Markell further testified that “[i]f they have a single EPC contractor, which in this case would have to be FuelCell Energy, they could in turn change the fuel specification to be raw biogas. At that point in time, it would redefine ‘plant’ to be more inclusive. Mr. Markell repeated, “I mean, FuelCell Energy, the way they did define ‘fuel cell power plant,’ it really ties back to the equipment that they are providing.” As plaintiffs note, however, “Congress could not have intended for a fuel cell power plant and all of the associated equipment to qualify if constructed under a single contract, but components

toward digester gas.” Mr. Leo explained that these standard options included a “deoxidizer option,” as well as a “fuel train that allows dual-fuel operation.”

in a physically identical plant would not qualify if constructed under more than one contract.”

A review of the record also indicates inconsistencies in the government’s argument. On the one hand, the government argues that the term “balance of plant” should be understood to match what was provided in the FuelCell Energy sales and service contracts. Multiple components of the RP1 and SJ-1 fuel cell facilities were not sourced by FuelCell Energy, and, therefore, under that definition, would not fall in FuelCell Energy’s contractually-defined “Balance of Plant.” Yet some of those not FuelCell Energy provided components were considered by the government to be part of the “balance of plant” in its evaluation of plaintiffs’ grant application. For example, Mr. Leo, from FuelCell Energy, testified that the “AC power” and “foundations,” for a FuelCell Energy fuel cell, which are included in the government’s definition of “balance of plant,” “aren’t provided by us unless we’re doing a turnkey.” Mr. Markell, defendant’s expert witness, also testified that the “foundations” and “pads” on which the FuelCell Energy fuel cell sit would count as “balance of plant,” “[b]ecause that equipment would basically provide the support necessary for the fuel cell power plant,” even though those items were not provided by FuelCell Energy nor in its standard “scope of supply.”³⁵

The power purchase agreements between RP1 and the IEUA, and SJ-1 and San Jose appear to the court more relevant to the court’s understanding of “balance of plant,” as applied to the RP1 and SJ-1 projects. Unlike the FuelCell Energy contracts, the power purchase agreements govern the design and use of the overall fuel cell facilities, not just a single subset of components. The power purchase agreement between RP1 and the IEUA was for a “fuel cell facility,” consisting of a “Fuel Cell power plant and ancillary equipment, as further described in the body of this Agreement and

³⁵ Defendant also argues that “[e]very time FCE refers to the projects or its products outside of the context of this litigation, it refers to the equipment it supplies as the ‘fuel cell power plant.’ Its brochures, specifications, and informational materials repeatedly refer to it that way.” Defendant states: “Thus, according to the manufacturer itself, the ‘fuel cell power plant’ is its fuel cell equipment, and the balance of plant is everything it provides related to the fuel cell module. It does not, however, include the separate gas conditioning system provided by ESC.” Mr. Leo admitted at trial “that in the documents provided by FuelCell Energy it’s common for you to refer to your equipment as a fuel cell power plant.” While it is true that, occasionally, FuelCell Energy documents sometimes refer to their components, or the fuel cell modules specifically, as the “plant,” “Power Systems,” “Power plant system,” or “power plant,” a review of the record indicates that FuelCell Energy was not consistent overall in the naming schemes included in its technical and marketing publications. Regardless, just as with the FuelCell Energy sales and service contracts, the other technical and marketing materials in the record appear limited to the “scope of supply” traditionally offered by FuelCell Energy, and do not inform the statutory definition of “fuel cell power plant” or “balance of plant” in I.R.C. § 48(c)(1)(C), which is at issue in this case.

Exhibit B and Exhibit D, providing a total gross electrical generating capacity of approximately 2.8 megawatts.” (emphasis in original). Exhibit B, “**FACILITY EQUIPMENT SPECIFICATIONS**,” discussed the fuel cell system’s technical requirements, and included a requirement for a “Gas Cleaning System.”³⁶ (capitalization and emphasis in original). Under Exhibit D, Part B, “SCOPE OF WORK,” (capitalization in original), the following was included:

The Seller shall include in the scope of work all necessary work, labor, taxes, services, equipment, appurtenances, and incidentals necessary to produce a fully functional and operational 2.8 MWac fuel cell system, including a fuel cleaning system for the available quality of digester gas, 4.1 million BTH heat recovery system for use by the Purchaser, and include the interconnection to the main utility service.

The SJ-1 power purchase agreement also required UTS BioEnergy, when creating the SJ-1 facility, to provide and install gas conditioning equipment. The power purchase agreement stated, under, “**GENERAL DESIGN CRITERIA**.” “The Fuel Cell System shall be fed digester gas. The Fuel Cell System shall include fuel conditioning and cleaning system.” (capitalization and emphasis in original).

Moreover, in response to defendant’s argument that the FuelCell Energy contracts define “balance of plant” narrowly, plaintiffs contend that industry standards have broadly defined the phrase. According to plaintiffs:

[T]wo national codes for the fuel cell industry treat gas conditioning equipment as part of the fuel cell power plant—the ‘ASME PTC-50-2002, Fuel Cell Power Systems Performance’ (PTC-50) performance test codes published by the American Society of Mechanical Engineers (ASME) [ASME standard] and the ‘NFPA 853, Standard for the Installation of Stationary Fuel Cell Power Systems’ (NFPA 853) published by the National Fire Protection Association (NFPA) [NFPA Standard].

Plaintiffs further assert that the IRS specifically references the ASME standard in IRS Notice 2008-68, Energy Credit for Qualified Fuel Cell Property and Qualified Microturbine Property, 2008 WL 3888278 (Aug. 28, 2008), and that defendant’s NREL witness, “Mr. Settle, who had previously reviewed this IRS Notice but had forgotten about it, accepted that the IRS considers the PTC-50 to be relevant to fuel cell power plants under Code § 48(c)(1).” Plaintiffs also allege that FuelCell Energy’s own publications reference the NFPA standard, and that the standard states: “Additional fuel gas cleanup equipment shall be considered part of the associated equipment” for a fuel cell power plant. At trial, Mr. Wason, plaintiffs’ expert witness, pointed to the standards from the “National Fire Protection Association” and “American Society of Mechanical Engineers,” and indicated they “specifically say for a biogas fuel cell power plant, the

³⁶ The parties agreed that gas cleaning system is the same as gas conditioning equipment.

gas conditioning equipment is part of the fuel cell power plant.” Plaintiffs also note that other documents in the record lend an expansive interpretation of the phrase “balance of plant,” and contend, as an example, that the California Self-Generation Incentive Program handbook “specifically defines eligible project costs to include costs for gas conditioning equipment.”

At trial, plaintiffs introduced as an exhibit the American Society of Mechanical Engineers Performance Test Code 50-2002, titled “**FUEL CELL POWER SYSTEMS PERFORMANCE**,” (capitalization and emphasis in original) (ASME Standard), which was accepted without objection into the record. The ASME standard discusses the contents of a “generic fuel cell power system,” and includes as a typical component:

Fuel Processing. Involves a variety of processes, depending on the fuel cell types. If the fuel cell is running on bottled hydrogen, fuel processing is minimal. Typically a fuel cell power system will be run on common hydrocarbon fuels, such as natural gas. Fuel processing usually involves cleaning to remove possible fuel cell poisons (e.g., sulfur compounds used in natural gas odorants). It can include reforming of the gas to produce hydrogen (in “externally reformed” systems) or this function can occur inside the stacks in some types of fuel cells. The fuel processor may also include other equipment, such as shift reactors, CO oxidizer reactors, higher hydrocarbon removal, etc.

(emphasis in original). Mr. Settle, from NREL, also agreed at trial that the standard’s definition of a fuel cell system includes “cleaning equipment for the fuel.” The ASME standard defined “balance of plant” as follows: “*Balance of Plant (BOP)*. Used to refer to all components in a fuel cell power system besides the electrochemical fuel cell stacks. The BOP can include fuel processing equipment, heat recovery equipment, power conversion equipment, control equipment, etc.” (emphasis in original). Mr. Settle testified for defendant at trial, however, that he viewed “fuel processing equipment” to mean only those “certain things that are customary for the fuel cell power plant, such as the desulfurization unit, filtration, and so forth. I would view that as what’s referred to here as fuel processing equipment.” Although Mr. Settle appeared to indicate from his testimony that “fuel processing equipment” under the ASME standard would not include gas conditioning equipment for anaerobic digester biogas, “[f]uel [p]rocessing” is defined in the same ASME standard to cover not only natural gas, but also other fuels, such as hydrogen, suggesting that “fuel processing equipment” would refer to equipment to process, and clean, multiple types of fuels.

Plaintiffs place specific emphasis on the ASME standard. Defendant’s witness, Mr. Settle from NREL, who was not qualified as an expert witness, but who was involved in the Section 1603 grant review and evaluation process, stated that the ASME standard “is one of the standards that the industry would rely on,” and acknowledged at trial that the IRS considers the standard relevant. Plaintiffs also note that the ASME committee that developed the PTC-50 included Mr. Leo as its Chair along with various other representatives from the fuel cell industry, the United States Department of

Energy, the United States Army Corps of Engineers, and two Government-owned laboratories (Argonne National Laboratory and National Energy Technology Laboratory). As noted above, plaintiffs pointed to IRS Notice 2008-68, Energy Credit for Qualified Fuel Cell Property and Qualified Microturbine Property, 2008 WL 3888278 (Aug. 28, 2008). Plaintiffs note that the IRS specifically references the ASME standard in this notice under “SECTION 5. RULES RELATING TO THE AVAILABILITY OF THE FUEL CELL CREDIT,” which states: “The electricity-only generation efficiency of a fuel cell power plant may be determined in accordance with the standards of ANSI/ASME PTC 50-2002 Fuel Cell Power Systems Performance or equivalent testing procedures under normal operating conditions using the lower heating value of the primary fuel.”

Defendant tries to minimize the importance of the ASME standard, stating that the standard, “*PTC-50 Is Not Relevant*.” (emphasis in original). Defendant states “[w]hile plaintiffs tout that the IRS considers PTC-50 to be relevant, its only relevance IRS [sic] was to set out the standards for efficiency testing, not to influence the statutory definition of a fuel cell power plant.” Mr. Settle from NREL also testified that the subject of the IRS Notice regarding the ASME standard has to do with “generation efficiency,” not about whether gas conditioning equipment is part of a fuel cell power plant. Defendant adds that “[i]t is notable that plaintiffs did not solicit any testimony about PTC-50 [ASME standard] from Mr. Leo, despite touting him as the chair of the committee in their brief.” Defendant argues that since Mr. Leo, from FuelCell Energy, and Mr. Wason, from Anaergia, did not focus on the standard, “[c]learly, their own witnesses do not ascribe much weight to the test code.” On cross-examination by plaintiff, Mr. Markell, defendant’s expert witness, testified that prior to this case, he had not used the ASME standard, but he has reviewed other similar standards. Mr. Markell stated that he did not rely on the ASME standard in his analysis because it did not have a definition of “plant.” He explained that the test code merely “sets up the ground rules on how you run your test. But prior to running your test you do what’s called a test protocol, and that will really set the boundaries of what is included in your -- the plant that you’re testing.” He indicated that the “test engineer” decides what to include on a given test and that, typically, the test engineer works for the developer.

Although the parties focus less on the NFPA standard, the 2010 version of the NFPA standard, titled “NFPA® 853 Standard for the Installation of Stationary Fuel Cell Power Systems,” defines “**Biogas Fuel Cell System**” as “[a] fuel cell system comprised of a conventional biogas source, such as a landfill gas site or municipal sewage digester site, a fuel cell specific gas cleanup unit, and a prepackaged or matched modular fuel cell power system.” NFPA Standard, at 853-6 (emphasis in original). Multiple industry sources indicate that the “balance of plant” of a fuel cell power plant specifically includes anaerobic digester biogas gas conditioning equipment. Based on the record before the court, plaintiff’s position that “balance of plant” should not be limited to a specific subset of components of the RP1 or SJ-1 fuel cell facilities, such as only the components supplied by FuelCell Energy, is supported.

Defendant, next, argues that underlying plaintiffs’ alleged definition of “balance of plant” for a “fuel cell power plant” under I.R.C. § 48(c)(1)(C), is an assertion that “fuel

cell power plant” should be defined keeping in mind the intended use of the power plant and those components necessary to support its intended use, which, in this case, would be to operate with anaerobic digester biogas as the primary fuel. Defendant maintains that plaintiffs’ arguments relating to “necessity” or “intended use” are “simply beside the point. The statute contains no reference to the intended purpose of a project or even to alleged contractual necessity.” Defendant asserts that, instead, the statute, I.R.C. § 48(c)(1)(C) defines “fuel cell power plant” narrowly, to include only those components required for the fuel cell power plant to operate at a basic level, on natural gas, without consideration for what is necessary for the fuel cell power plant to operate as contractually intended. Defendant states: “To permit them to define the statute based on their intended use at a particular project would allow each individual applicant (or taxpayer, in the energy credit context) to redefine the statute based on their own particular set of circumstances.”

Defendant, speaking specifically about the RP1 and SJ-1 projects, states that “[t]he evidence is clear that the projects’ fuel cells can and do operate on natural gas, which bypasses the external gas conditioning system.” Defendant adds: “the RP1 and SJ-1 fuel cell power plants start up on natural gas, and they run on natural gas whenever the gas conditioning is not functioning, when the biogas quality from the digesters is too low, or when there is insufficient biogas.” Defendant argues that, thus, because the RP1 and SJ-1 fuel cell facilities can technically run on natural gas, the Section 1603 grant should only cover as “balance of plant” those components that contribute to the operation of the fuel cell facilities on natural gas, and not those components that facilitate their operation on alternative fuels, such as anaerobic digester biogas. In support, defendant brings to the court’s attention the “**Property Placed in Service**” date for the RP1 project included in its Section 1603 grant application, and points to “the fact that the RP1 project came online on September 11, 2012, utilizing natural gas, a full two months before it began generating electricity from digester gas on November 9, 2012.”³⁷ (emphasis in original). Defendant contends that because plaintiffs claimed the earlier “**Property Placed in Service**” date for the RP1 project of September 11, 2012 on their Section 1603 application, this demonstrates “that plaintiffs themselves considered the fuel cell operational when it was running solely on natural gas.” (emphasis in original).

Plaintiffs reply that “the ‘intended use’ of ITC [Investment Tax Credit] property is critical for determining whether property is an ‘integrated unit of property,’ is an ‘integral part’ of a qualifying activity, and has been placed in service.” Regarding “balance of plant,” plaintiffs state:

Witnesses for both sides accepted that the fuel cell plants were contractually and economically required to run on the digester gas and

³⁷ Unlike the RP1 facility, the record indicates that the SJ-1 facility “began commercial operations” with natural gas and anaerobic digester gas on June 15, 2012, and did not previously start operations with natural gas. On its Section 1603 application, SJ-1 also listed its “**Property Placed in Service**” date as June 15, 2012.

that this was the intended use and the primary purpose of the Projects. It also is indisputable that the gas conditioning equipment is essential for this intended use and must be included as balance of plant for the fuel cell power plant.

(internal citations omitted). Plaintiffs point to a number of cases issued by the United States Tax Court, Noell v. Commissioner, 66 T.C. 718 (1976), acq. in part, 1977-2 C.B. 1, 1977 WL 185621 (Dec. 31, 1977), Valley Natural Fuels v. Commissioner, T.C. Memo. 1991-341, 1991 WL 135497 (July 25, 1991), aff'd, 990 F.2d 1266 (9th Cir. 1993), and 85 Gorgonio Wind Generating Co. v. Commissioner, T.C. Memo. 1994-544, 1994 WL 591909 (Oct. 31, 1994), for the proposition that “ITC [I.R.C. § 48(c)(1)(C)] case law demonstrates the importance of the intended use of the property and the irrelevant aspect of initial or intermittent use of the property for another purpose (here, initial operation on natural gas).”

As to defendant’s allegation that the RP1 project was “**Placed in Service**” only on natural gas before operating with any anaerobic digester biogas, plaintiffs argue: “The problem with Mr. Settle’s testimony is that he has confused the separate ‘commissioning’ of the fuel cell equipment on two different fuel sources with the commissioning of the gas conditioning equipment.” Plaintiffs add that “[a]s Mr. Leo explained, the only reason that the fuel cell equipment is ‘commissioned’ separately on natural gas and digester gas is to verify the dual-fuel operation.” Plaintiffs also contend that, for the RP1 project, “[t]he fuel cell equipment and gas conditioning equipment were in a state of operations (even if not operating in a synchronization) on September 11, 2012, and were accordingly placed into service for tax purposes.” Plaintiffs also maintain:

Hypothetically, even if the gas conditioning equipment was not “in a state of readiness and availability” on September 11, 2012, all this proves is that UTS incorrectly reported the placed-in-service date on its grant application. That is, the fuel cell power plant was not ready and available for its specifically assigned function—to operate on digester gas—before the gas conditioning equipment was operational. And, even if the fuel cell equipment was somehow placed in service separately from the gas conditioning equipment, it would not disqualify the gas conditioning equipment from a Section 1603 grant.

The record indicates that the intended purpose of both the RP1 and SJ-1 facilities was to operate using anaerobic digester biogas. The request for proposal for the RP1 project stated: “[t]he purpose of the proposed fuel cell construction is to replace the current power generation system at RP1 and utilize digester gas as the primary fuel supply.” The RP1 power purchase agreement with the IEUA stated that the “SCOPE OF WORK,” (capitalization in original), was for an “energy efficient fuel cell system that will maximize the use of digester gas and increase the renewable energy resource potential at the delivery point.” The RP1 power purchase agreement further stated that the RP1 fuel cell facility “requires a regular minimum operating ratio of 75% digester gas and

25% natural gas.” The parties have stipulated that the RP1 facility planned, at a minimum, to operate on 75% anaerobic digester gas. The request for proposal for the SJ-1 system asked for a fuel cell system “to be operated on plant digester gas,” and indicated that the SJ-1 facility would run on one hundred percent anaerobic digester gas. A report from the San Jose Water Pollution Control Plant states that the “City of San José seeks out partnerships with innovative firms to convert solid waste and biosolids—such as those produced by the Plant’s treatment process—into biodiesel, methanol, biogas, and electricity that will someday power municipal operations as well as be available to other users.” The parties also stipulated that the SJ-1 facility planned, at a minimum, to operate on 75% anaerobic digester gas. Moreover, Mr. Wason, plaintiff’s expert witness, testified at trial that operation of the SJ-1 fuel cell facility on natural gas is not practical “because the contract between Anaergia and City of San Jose is based on a hundred percent digester gas. . . . but if the problem is due to something went wrong in the gas conditioning equipment and now a gas coming out is not clean enough, now, if you use natural gas, Anaergia would have to pay for it.” Mr. Wason added that even if the RP1 or SJ-1 facilities were within their “uptime” requirements, they would still not choose to operate on natural gas if digester gas was unavailable, and would rather shut down: “You will not run it on natural gas because the cost for the natural gas and the O&M [operations and maintenance] cost is higher than what they have, you know, agreed to charge the city for the electricity.”

Whether a facility’s “intended use” or purpose is relevant to interpretation of Section 1603 and I.R.C. § 48, begins with the words of the statutes. Section 1603 awards a grant to “[a]ny qualified fuel cell property (as defined in section 48(c)(1) of such Code).” See Section 1603(d)(2). I.R.C § 48(c)(1)(C) defines a fuel cell power plant as “an integrated system comprised of a fuel cell stack assembly and associated balance of plant components which converts a fuel into electricity using electrochemical means,” but does not further clarify whether this definition considers the intended use of the fuel cell facility, or some other standard. See id.

The court also examines neighboring provisions of the Internal Revenue Code related to the Investment Tax Credit program for guidance, and, in particular, Subpart E, “Rules for Computing Investment Credit,” IRC §§ 46–50.³⁸ As defendant indicates in its briefs, when determining whether or not I.R.C. § 48, “Energy credit,” should be interpreted keeping the intended use of a property in mind, a neighboring provision of the Internal Revenue Code, I.R.C. § 46, “Amount of credit,” is instructive. Although I.R.C. § 48 determines what types of facilities are eligible for an investment tax credit, I.R.C. § 46 determines the “Amount of credit” that a specific facility should get, based on a number of factors. The regulations promulgated under I.R.C. § 46, Treas. Reg.

³⁸ Earlier in the same section of the Internal Revenue Code, I.R.C. § 48, the general term “**Energy property**” is defined to include a “qualified fuel cell property,” “which is acquired by the taxpayer if the original use of such property commences with the taxpayer.” See I.R.C. § 48(a)(3)(A)(iv), (B)(ii). This might suggest that an energy property, such as a qualified fuel cell property, could be defined in relation to its “original use,” or “intended use.” See id.

§§ 1.46 et seq., explain how to determine the amount awarded for an investment tax credit, see Treas. Reg. § 1.46-1, “Determination of amount,” as well as what is a part of the qualified cost basis for the investment tax credit, see, e.g., Treas. Reg. §§ 1.46-3, “Qualified investment,” and 1.46-5, “Qualified progress expenditures.” A review of the regulations supports the conclusion that I.R.C. §§ 46 and 48 are related; while I.R.C. § 48, “Energy credit,” defines broadly which facilities are eligible for an investment tax credit, I.R.C. § 46, “Amount of credit,” and its accompanying regulations, clarify which components of the facility fall within the ambit covered by the tax credit, depending, for example, on when the individual components were “*Placed in service*.” See Treas. Reg. § 1.46-3(d) (emphasis in original). Defendant actually links the two concepts together when it argues that I.R.C. § 48, “Energy credit,” should not be interpreted to cover “intended use” of an energy property, and offers as support for its position the allegation that the RP1 facility was placed into service when it was operating only on natural gas. “*Placed in service*,” however, is defined under the Treasury Regulations pursuant to I.R.C. § 46, “Amount of credit.”

Plaintiffs in their brief point to Treasury Regulation § 1.46-5, “Qualified progress expenditures,” which states:

Property is part of an integrated unit only if the operation of that item is essential to the performance of the function to which the unit is assigned. Property essential to the performance of the function to which the unit is assigned includes property the use of which is significantly connected to that function and which effects the safe, proper, or efficient performance of the unit.

Treas. Reg. § 1.46-5(e)(3)(ii). Plaintiffs argue that “[t]his [Treasury] regulatory definition subsumes what would normally be treated as ‘balance of plant.’ This definition matches almost perfectly with the opinion of mechanical engineer Sarwan Wason, who concluded that gas conditioning equipment is an ‘essential’ and ‘necessary’ part of the fuel cell power plants at issue.”

Defendant urges the court not to rely on Treasury Regulation § 1.46-5, because it:

is based on a repealed statute. Under former § 46(d), a taxpayer could elect to take an investment tax credit (ITC) for so-called “qualified progress expenditures,” amounts paid toward the construction of otherwise qualifying ITC property that had a “normal construction period” exceeding two years. Treas. Reg. § 1.46-5(d). For property placed in service separately, this period was determined separately, unless such property comprises an “integrated unit.” Treas. Reg. § 1.46-5(e)(3)(i).

Defendant argues the statute was repealed in 1990 “as part of the Tax Reform Act of 1986, which added § 49 to sunset the ITC provisions.” Even if the underlying statute was sunset, however, the provision of Treasury Regulation § 1.46-5(e)(3)(ii) was not

struck by the agency and remains in effect. Regardless, the court is not relying on Treasury Regulation § 1.46-5(e)(3)(ii) as definitive guidance, but, instead, as part of its examination of section 48 of the Internal Revenue Code.

Plaintiffs in their briefs also point to Treasury Regulation § 1.46-3, “Qualified investment,” in which “*Placed in service*,” (emphasis in original), is defined as:

(d) *Placed in service*. (1) For purposes of the credit allowed by section 38, property shall be considered placed in service in the earlier of the following taxable years:

- (i) The taxable year in which, under the taxpayer’s depreciation practice, the period for depreciation with respect to such property begins; or
- (ii) The taxable year in which the property is placed in a condition or state of readiness and availability for a specifically assigned function, whether in a trade or business, in the production of income, in a tax-exempt activity, or in a personal activity.

Thus, if property meets the conditions of subdivision (ii) of this subparagraph in a taxable year, it shall be considered placed in service in such year notwithstanding that the period for depreciation with respect to such property begins in a succeeding taxable year because, for example, under the taxpayer’s depreciation practice such property is accounted for in a multiple asset account and depreciation is computed under an “averaging convention” (see § 1.167(a)–10), or depreciation with respect to such property is computed under the completed contract method, the unit of production method, or the retirement method.

Treas. Reg. § 1.46-3(d)(1). Of importance is the limitation, “property shall be considered placed in service in . . . [t]he taxable year in which the property is placed in a condition or state of readiness and availability for a specifically assigned function.” *Id.*; see also 8 Mertens Law of Fed. Income Tax’n § 32A:8.30 (2015), available at Westlaw. (“Generally, a property is placed in service when it is placed in a condition or state of readiness and availability for a specifically assigned function.” (citing Treas. Reg. § 1.46-3(d)(1)(ii))); IRS Tech. Advice Memo. 201113025, 2011 WL 1210325, at *1 (Apr. 1, 2011) (discussing the “placed in service” rule under Treas. Reg. § 1.46-3(d), and noting that to be placed in service, “a facility must be ready and available to produce on a sustained and reliable basis in commercial quantities.”); see also *Consumers Power Co. v. Comm’r*, 89 T.C. at 724 (“The regulations provide that property will be regarded as placed in service when it is ‘placed in a condition or state of readiness and availability for a specifically assigned function.’” (citing Treas. Reg. § 1.46-3(d)(1)(ii))). Moreover, in an IRS Technical Advice Memorandum, Treasury clarified that:

In order to determine when a facility has reached a condition or state of readiness and availability for a specifically assigned function, all facts and circumstances must be considered. The Service has generally looked to a number of factors to determine when a facility is in a condition or state of readiness and availability for a specifically assigned function. They are:

- (1) approval of required licenses and permits;
- (2) passage of control of the facility to taxpayer;
- (3) completion of critical tests; and
- (4) commencement of daily or regular operation.

These factors are not exclusive - they are used as guideposts to determine whether, looking at the totality of the facts and circumstances, a facility has been placed in service.

IRS Tech. Advice Memo. 201113025, at *1 (citing IRS Rev. Rul. 84-85, 1984 WL 262650 (June 18, 1984); IRS Rev. Rul. 76-526, 1976 WL 36215 (Jan. 1, 1976); IRS Rev. Rul. 76-428, 1976 WL 36179 (Jan. 1, 1976)).

Although decisions by judges of the United States Tax Court are not binding on this court, the court gives their interpretations, including those regarding an investment tax credit statute such as I.R.C. § 48, “Energy Credit,” and its related section I.R.C. § 46, “Amount of credit,” due consideration. A review of United States Tax Court decisions supports plaintiffs’ view that the intended, contracted-for use of the property should be considered when determining whether a project is “*Placed in service*,” (emphasis in original), under Treasury Regulation 1.46-3(d), and, furthermore, that the intended use of a property is relevant to application of Internal Revenue Code requirements. In Noell v. Commissioner, at issue “with respect to petitioner’s claim for an investment credit is whether the main runway and two taxiways were placed in service in 1968.” Noell v. Comm’r, 66 T.C. at 728. In Noell, the IRS was arguing that the runway was in place one year earlier, in 1967, “since airplanes began to use the runway after the rock was laid in place in 1967.” Id. The Noell court concluded that “[t]he rock surface on which some planes landed in 1967 was clearly only a stage in the construction of the facility,” and added: “In short, the facility was simply not available for full service until the runway was paved in 1968. We therefore hold that the landing facilities were not placed in service until that year.” Id. at 728–29. Although the Noell court’s analysis related specifically to Treasury Regulation § 1.46-3(d), which discusses a property’s “*Placed in service*” date, the case is instructive as to whether the Internal Revenue Code looks to “intended” versus “actual” use of a property in determining appropriateness for receipt of the investment tax credit. See Treas. Reg. § 1.46-3(d) (emphasis in original); Noell v. Comm’r, 66 T.C. at 728.

In Valley Natural Fuels v. Commissioner, the United States Tax Court also addressed whether a facility was placed in service at the time of its full, intended use, or at the time when it started operations at some basic level. See Valley Natural Fuels v. Comm’r, 1991 WL 135497. In Valley Natural Fuels, the circumstances were somewhat

reversed from Noell, as petitioner contended that its facility was placed in service earlier than the IRS contended, so that it could receive an investment tax credit that would otherwise have expired:

Petitioner's position is that the facility was placed in service on December 30, 1983. Petitioner contends that the assigned function of the facility was to produce a "warranted QUANTITY" of "commercially marketable ethanol, whether such ethanol was 198.2 proof, 190 proof or 150 proof" and that, as of December 30, 1983, the facility was capable of performing this function.

See id. The IRS had concluded "that the facility was not placed in service until June 1985 because" only by then was the facility able to produce the highest grade of "ethanol at 198.2+ proof for purposes of blending with gasoline to make gasohol." Id. The United States Tax Court agreed with the IRS position, that the later, 1985 date was appropriate:

We similarly conclude that the ethanol still, which was constructed in 1983, the molecular sieve, which was installed in 1984, and the additional equipment, which was installed in 1985, were component assets of the facility and "functionally formed a single property." Only after all of these component assets were installed and functioning did the facility constitute a complete unit that was operational and served the purpose intended by petitioner, to wit, the production of 198.2 proof ethanol.

Id. The court in Valley Natural Fuels, a case often referred to in subsequent tax court cases, reviewed a number of United States Tax Court decisions offered by petitioner in that case for the proposition that earlier, intermittent use of a property for a purpose less than the full, intended purpose, would still allow the facility to qualify for an investment tax credit with the earlier placed in service date. In reviewing the decisions, the Valley Natural Fuels court stated:

The property at issue in each of those cases was in a state of readiness and availability to perform its assigned function, although not actually used by the taxpayer during the year in issue due to circumstances beyond the control of the taxpayer. The facts in those cases are distinguishable from the facts in the instant case, where operations were not at or near the intended level of production.

See id.

In 85 Gorgonio Wind Generating Co. v. Commissioner, the United States Tax Court again concluded that operation of two wind turbines at less than intended use prevented them from being placed in service for the purpose of a business tax credit. See 85 Gorgonio Wind Generating Co. v. Comm'r, 1994 WL 591909, at *6, *10. The Gorgonio court concluded:

Operation of the Dynergy 180 wind turbines without controllers was theoretically possible, at least for short periods of time, but would be less cost effective and potentially more hazardous than operation with the automatic controllers designed for use on the wind turbines.

. . .

In sum, the partnership's two wind turbines were simply not available for production of electricity on a regular, ongoing basis in the condition in which they existed in 1985. Since neither of the partnership's wind turbine generators were available for full service on or before December 31, 1985, we hold that they were not placed in service in that year.

Id. at *9; see also Armstrong World Indus., Inc., & Affiliated Cos. v. Comm'r, T.C. Memo. 1991-326 (Tax Court, 1991) (determining that "[t]he applicable authorities are consistent in their analysis of placed in service where the completion of a component is integral to the availability and readiness of a project as a whole for its specifically assigned function"), aff'd, 974 F.2d 422 (3d Cir. 1992). In 85 Gorgonio Wind Generating Co. v. Commissioner, the government had argued that under I.R.C. § 46 the business tax credit should only be available when the facilities were ready for their intended use because, in that case, the government would not have had to allow a fifteen percent business tax credit. See 85 Gorgonio Wind Generating Co. v. Comm'r, 1994 WL 591909, at *10 (noting that "[t]he 15-percent business energy tax credit for wind property expired on December 31, 1985"). In contrast, the government now argues in the above captioned case that whether a facility was ready or not for its intended use is irrelevant.

A number of more recent United States Tax Court decisions continue to agree that application of the investment tax credit, and determination of a project's "*Placed in service*" date, should be interpreted with intended use in mind. See Brown v. Comm'r, T.C. Memo. 2013-275, 2013 WL 6244549, at *12 (Dec. 3, 2013) ("And, just as the ethanol plant in Valley Natural Fuels needed to have all of its components in place and functioning in the right way to fulfill its specifically assigned function before we could find that it was placed in service, so too did the Challenger require installation of all of its necessary parts—including the conference table and enlarged display screens—to fulfill its specifically assigned function before it was placed in service." (citing Valley Natural Fuels v. Comm'r, 1991 WL 135497)). Brown v. Comm'r also emphasizes that:

Cases like Consumers Power and Valley Natural Fuels tell us to look at the taxpayer—he's the one who gets to determine what an asset's "specifically assigned function" is. . . . Even though an asset like the Challenger may be operational, it's not placed in service until it is operational for its intended use on a regular basis.

Brown v. Comm’r., 2013 WL 6244549, at *12 (quoting Treas. Reg. § 1.46-3(d)(ii) and citing Consumers Power Co. v. Comm’r., 89 T.C. 710; Valley Natural Fuels v. Comm’r., 1991 WL 135497).

The court also notes that defendant’s witness, Mr. Settle from NREL, testified at trial that he viewed the “placed in service” date during the evaluation of the RP1 and SJ-1 projects as the date the project is “ready and available for its intended use.” Mr. Settle testified to his understanding of “placed into service” as when “construction has ended, if you will. The facility, the energy property, is ready and available for its intended use.” Nonetheless, the record suggests that Mr. Settle and NREL also considered other factors to determine when a facility was placed into service, which do not necessarily align with the Treasury Regulations or Internal Revenue Code. Mr. Settle stated: “But for the most part, in the 1603 program, we view that as essentially the stopping of construction and the point at which the costs are basically capitalized to the energy property, so it gives us our eligible basis from which to make the calculation.” He also stated: “But, you know, a lot of this basically hinges on is the facility up and running according to their commissioning report as submitted by the applicant.”

It is apparent from the above and the court’s analysis, that the Internal Revenue Code sections and Treasury Regulations pertaining to the I.R.C. § 48, “Energy credit,” like I.R.C. § 46, “Amount of credit,” should be interpreted keeping in mind a facility’s intended use or “specifically assigned function,” and the taxpayer is “the one who gets to determine what an asset’s ‘specifically assigned function’ is. . . .” Brown v. Comm’r., 2013 WL 6244549, at *12 (quoting Treas. Reg. § 1.46-3(d)(ii)). The evidence in the record indicates that the intended use of the RP1 and SJ-1 facilities is to function mostly, if not one hundred percent, on anaerobic digester biogas. Although defendant points out that technically, the facilities can function on natural gas, even Mr. Markell, defendant’s expert witness, states that, although “technically the equipment can run on natural gas,” “[c]ontractually and economically, yes, you have to run them on biogas.” Defendant is correct that plaintiff RP1, on its Section 1603 grant application, put its “**Property Placed in Service**” date as September 11, 2012, although, at that time, RP1 was only commissioned by FuelCell Energy on natural gas, and was not certified as operating with at least a 75% biodigester gas blend until November 9, 2012.³⁹ This simply indicates, however, as plaintiffs state in their briefs, that RP1 and its parent, UTS BioEnergy “incorrectly reported the placed-in-service date on its grant application. That is, the fuel cell power plant was not ready and available for its specifically assigned function—to operate on digester gas—before the gas conditioning equipment was operational.” RP1’s date entry, however, does not appear to affect eligibility of the RP1 project for a Section 1603 grant that includes the project elements claimed by the plaintiffs.⁴⁰

³⁹ The record also does not affirmatively rule out that RP1 was using any anaerobic digester biogas before November 9, 2012.

⁴⁰ Related to the discussion above, Mr. Markell added that he considered it odd that the monthly operations reports for the RP1 and SJ-1 projects, which track the performance

An analysis of the statutes, regulations, case law, and the record before the court also fails to support defendant's contention that the gas conditioning equipment should be treated differently than other elements of a fuel cell power plant that the government has included when calculating the cost basis for a Section 1603 grant. In particular, the court finds little functional difference between natural gas desulfurizers and biogas gas conditioning equipment. Defendant argues that the FuelCell Energy natural gas desulfurizers are part of the "balance of plant" of a fuel cell power plant because they "serve as a fail-safe in case the natural gas supply varies and there is an unexpected increase in the amount of sulfur." Defendant's expert witness, Mr. Markell, stated that it was typical to include a natural gas desulfurizer as part of a fuel cell facility operating on natural gas, because, "[n]atural gas out of the pipeline has a tendency to have the sulfur content vary, so it may meet the fuel spec one hour, but four hours later it may not, and it will vary, so it's really kind of a safety measure for FuelCell Energy"⁴¹ In addition, Mr. Markell testified that the natural gas desulfurizers perform similar work as the gas

of the fuel cell facilities, tracked the performance and uptime for both the fuel cell module and the gas conditioning equipment. He explained that "[a]n operation report is typically something that goes to upper management or the lenders on a timely basis, whether it's a week or every month, and gives an overall summary of the operation of the projects." Mr. Markell noted that "The unusual part in their operations report is they show the availability for both the fuel cell and the gas conditioning system. While it is common to track the availability of all the various subsystems, it's very unusual to report them to management on an individual basis." Mr. Sharma testified at trial however, that "depending on the complexity, there are many parameters which are tracked from time to time for various reasons. If this were a nuclear power plant, you would probably track 57 different components. That doesn't make it 57 different plants. It is a single plant. It's an integrated plant." Although the monthly operations reports separately tracked "Fuel Cell Availability" as well as "DG [digester gas] Treatment Availability," the court does not consider the separate tracking as definitive that the gas conditioning equipment is not within the "balance of plant" of the overall fuel cell power plant.

⁴¹ Mr. Markell appears to have made contradictory statements. Mr. Markell previously stated: "The desulfurizers provide some additional gas cleanup if necessary," but added that "the fuel must meet that spec prior to getting to this equipment." Mr. Markell's testimony that sometimes, the natural gas quality from the pipeline can vary and fall below the fuel cell specification, enough to "poison" the fuel cells, contradicts his prior testimony that the natural gas meets the fuel specification at the pipeline, and defendant's statements in its brief, that "[t]he pipeline natural gas that fuels the DFC power plant meets the fuel specifications without any additional treatment." The court also notes that, in the FuelCell Energy fuel specification document, when discussing "**Fuel Specifications**" for "Natural Gas," the following is stated: "Fuel with contaminants beyond the Standard Design limits shown in Table 2 require review and written approval by FCE and may require additional fuel treating equipment or decreased maintenance intervals." (emphasis in original). This indicates that, sometimes, natural gas may need treatment before it can meet the FuelCell Energy fuel cell specification.

conditioning equipment, “[i]n the sense that they do provide some cleaning of the gas, yes, but not to the same level.” As discussed, the definition of “fuel cell power plant” in I.R.C. § 48 is to be interpreted keeping in mind the intended use of the facility in question, see Brown v. Comm’r., 2013 WL 6244549, at *12, which, in this case, is the production of energy from anaerobic digester biogas, and which requires the biogas to be cleaned before use by the fuel cell module. As discussed more below, the term “fuel” in I.R.C. § 48 is considered to be broadly defined and includes anaerobic digester gas. See, e.g., Treas. Reg. § 1.48-9(c)(5)(ii). Mr. Markell stated that the natural gas desulfurizers’ purpose is to clean the natural gas so “they don’t poison the catalyst in there, in their fuel cells.” Defendant has failed to explain why natural gas desulfurizers should be part of a fuel cell power plant “balance of plant,” when they clean a fuel intended for use by the RP1 and SJ-1 projects, although gas conditioning equipment, which also cleans a fuel intended for use by the RP1 and SJ-1 projects, should not be considered “balance of plant.”

Defendant notes one difference between the natural gas desulfurizers and the gas conditioning equipment—that “natural gas is conditioned prior to insertion in the pipeline, which is why it meets the FCE fuel specifications without additional treatment.” Defendant continues, “[b]ecause the pipeline natural gas that fuels the DFC power plant meets the fuel specifications without any treatment by the separate gas conditioning system, external gas cleanup is not necessary to the fuel cell systems’ conversion of fuel to electricity.” Defendant asserts that

applying Mr. Wason’s theory of “necessity”, the gas conditioning equipment used in the fields by the natural gas extraction companies should be considered as part of the balance of plant of any fuel cell power plant that happens to hook up to a pipeline receiving that gas from a utility. Such a conclusion, however, would obviously be absurd.

Defendant’s argument incorrectly asserts that the natural gas coming from the pipeline “meets the FCE fuel specifications without additional treatment.” Mr. Markell, defendant’s expert witness, stated that “[n]atural gas out of the pipeline has a tendency to have the sulfur content vary, so it may meet the fuel spec one hour, but four hours later it may not” Defendant’s assertion that plaintiffs’ theory would lead to an absurd result, is also incorrect. Defendant’s hypothetical scenario tries to convince the court that, because it is necessary for natural gas to be cleaned before use by a fuel cell module, the entire utility-side natural gas cleaning operation would be eligible for a Section 1603 grant for this one project. The entire utility natural gas cleaning operation, however, is not necessary to supply natural gas to the RP1 and SJ-1 facilities.

Which Converts a Fuel into Electricity

In defendant’s third argument for why gas conditioning equipment is not “balance of plant” the government refers back to the text of the definition of “fuel cell power plant” in I.R.C. § 48(c)(1)(C). According to defendant, “*The Statutory Definition of Fuel Cell Property Is Limited to the System that Converts Fuel to Electricity.*” (emphasis in

original). Defendant contends that the other terms in the I.R.C. § 48 definition of “fuel cell power plant,” in particular, the terms “integrated system,” and “balance of plant,” are limited only to those components “that support the conversion of the fuel into electricity,” and, therefore, “do not include the property required to clean up the biogas so it can be used as fuel.” Defendant explains that “only one integrated system ‘converts a fuel to electricity’: the DFC power plant provided by FCE, which takes natural gas and biogas and generates electricity.” Therefore, according to defendant, “plaintiffs attempt to shoehorn the external gas conditioning system into the statutory definition of ‘fuel cell power plant,’ even though it does not convert a fuel to electricity, as that statute requires.”

Defendant argues that the gas conditioning equipment is not part of the system that converts fuel to electricity, because the anaerobic digester biogas that enters the gas conditioning system is not “fuel.” In support, defendant asserts that “fuel” is limited to chemicals that already meet the FuelCell Energy fuel specifications document, “**Fuel Specifications for Direct FuelCell® Powerplants**.” (emphasis in original). As a result, defendant defines “balance of plant,” to exclude any components of the RP1 and SJ-1 fuel cell facility that handle biogas before it has been cleaned, even if to meet the FuelCell Energy fuel specifications. Defendant relies on trial testimony of its expert witness, Mr. Markell, who stated that he “looked at the statute and tried to define the terms in the statute technically. The key part that I focused on is taking a fuel and converting it by electromechanical means to produce electricity.” Mr. Markell stated in response to a question:

Q. So going through that analysis, really the term “fuel” is what distinguishes the hypothetical scenario where you have the fuel cell stack assembly and associated balance of plant components and this additional phraseology in the statute; is that -- is that what your opinion is based on?

A. In my opinion, yes, that is. The differentiating factor is the term “fuel.”

Mr. Markell expanded on his explanation, focusing on the definition of the word “fuel” in his analysis:

So looking at the major systems, the fuel cell power plant is the only portion that takes a fuel and converts it electrochemically to produce electricity.

Now, the key to saying that is the definition of “fuel,” so technically you would look at how is “fuel” defined.

Based on looking at the documents provided, FuelCell Energy provides a fuel spec, a specification for the fuel that is acceptable for use in their fuel cell.

So once that material meets that fuel spec, at that point in time that is what I was considering as fuel.

So another way to put it is, in their fuel spec they state “acceptable fuel,” so at that point it’s an acceptable fuel to be used in the fuel cell power plant.

Mr. Markell further testified that “you’ll always have a fuel specification no matter the technology, whether it’s a gas turbine, whether it’s a reciprocating engine, a microturbine or whatever,” and, therefore, fuel is to be defined based on the specific fuel specification applicable for the power plant under examination.

Plaintiffs respond that defendant’s focus on “fuel” in the Internal Revenue Code “eliminates the key part of the definition that defines what property is included in that plant—‘an integrated system comprised of a fuel cell stack assembly and associated balance of plant components.’” Plaintiffs assert that the phrase “balance of plant” is an important part of the statutory definition. According to plaintiffs, if the court concludes that gas conditioning equipment can fall within the “balance of plant” of a fuel cell power plant (as it has in this case above), the analysis should stop there. In support, plaintiffs argue that, “[u]nder the Government’s balance-of-plant definition,” equipment is already considered “balance of plant” even though it “performs a different function than ‘convert[ing] a fuel into electricity,’ including gas conditioning equipment for natural gas [natural gas desulfurizers], the water treatment system, the deoxidation module and fuel blending/switching system for digester gas, and the substantial ‘downstream’ electrical equipment supplied by FuelCell Energy and the EPC.”

Plaintiffs are correct in noting that the government’s alleged definition of “balance of plant” is quite broad, and covers materials such as the concrete “foundations” and various electrical components that may be considered, at best, tangentially related to converting fuel to electricity. The Internal Revenue Code defines “fuel cell power plant” as “an integrated system comprised of a fuel cell stack assembly and associated balance of plant components which converts a fuel into electricity using electrochemical means.” I.R.C. § 48(c)(1)(C). The issue, therefore, is whether the phrase, “which converts a fuel into electricity using electrochemical means,” modifies the whole phrase “an integrated system comprised of a fuel cell stack assembly and associated balance of plant components,” or only the phrase “fuel stack assembly” and/or “associated balance of plant components,” and whether the phrase, “which converts a fuel into electricity using electrochemical means” limits a “fuel cell power plant” only to the fuel cell components that operate on natural gas, as defendant prefers.

Plaintiffs argue, in the alternative, that, when examining the phrase “which converts a fuel into electricity” under I.R.C. § 48, the key word to which defendant points, “fuel,” should be broadly defined and include anaerobic digester biogas. Plaintiffs state that defendant’s expert, “Mr. Markell’s critical ‘differentiating factor,’ the term ‘fuel’ in Code § 48(c)(1)(C), is not based on any fuel cell industry definition.” Plaintiffs state that Mr. Markell incorrectly “latched onto the FuelCell Energy fuel specifications, which

Mr. Leo testified are not intended to define what is a ‘fuel’ but are intended to define the limits for fuel contaminants in natural gas and digester gas.” Plaintiffs note: “As Mr. Markell acknowledged, the statute does not use the term ‘acceptable fuel,’ and neither does the legislative history or any IRS or Treasury interpretation of Code § 48(c)(1)(C).” Plaintiffs maintain that “Mr. Markell conceded that he did not review any particular definitions in the energy industry for the term ‘fuel,’” and that fuel in the industry is broadly defined to be “[a]ny material that can be burned to make energy,” quoting Department of Energy publications. Plaintiffs also add that a Treasury Regulation clarifying I.R.C. § 48, “Treas. Reg. § 1.48-9(c)(5)(ii) defines the term ‘fuel’ as ‘[a] fuel is a material that produces usable heat upon combustion.’”

Plaintiffs assert that Mr. Markell admitted at trial that anaerobic digester gas meets industry-defined definitions of fuel, and that, if fuel was defined in this manner, the gas conditioning equipment would therefore be part of the system which converts fuel to electricity, pursuant to I.R.C. § 48(c)(1)(C). Plaintiffs add that: “The deepest flaw in Mr. Markell’s logic is, as Mr. Sharma testified, that ‘every fuel that has to be introduced in a fuel cell stack, which has very stringent requirements, has to be conditioned in some fashion or other.’” Plaintiffs conclude by stating:

It is clear that the purpose of the language “which converts a fuel into electricity using electrochemical means” in Code § 48(c)(1)(C) is purely definitional—it is intended to define what a fuel cell power plant does not what its outer boundaries are or otherwise change the scope of the components specifically listed in the definition. There is no basis for setting arbitrary boundaries based on the manufacturer’s fuel specifications. The evidence in the record establishes that the digester gas is a “fuel” and, in any event, this language does not arbitrarily limit the scope of the fuel cell power plant to exclude necessary gas conditioning equipment.

As Mr. Markell admitted on cross-examination, the term “acceptable fuel” coined by defendant does not appear in Section 1603 or I.R.C. § 48. In contrast to the testimony of defendant’s expert witness regarding the definition of “fuel,” other definitions of the term “fuel” were provided by the Department of the Treasury, the Department of Energy, industry documents, and other witnesses at trial, that are relevant to the discussion. Looking first at the Treasury Regulations, “fuel” is defined broadly, in a manner that would include anaerobic digester biogas as a “fuel.” Treasury Regulation § 1.48-9, titled “Definition of energy property,” defines “fuel” as “a material that produces usable heat upon combustion.” See Treas. Reg. § 1.48-9(c)(5)(ii). Furthermore, although Mr. Markell testified that “I don’t believe there is a specific definition for ‘fuel’ in the energy industry,” at trial, plaintiffs provided two definitions for “fuel,” issued by federal government agencies that operate in the energy industry. The first definition was from the Department of Energy’s **“OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY,”** online “Glossary of Energy-Related Terms.” (capitalization and emphasis in original). The Department of Energy Glossary defined “FUEL” as “[a]ny material that can be burned to make energy.” (capitalization in

original). The Department of Energy Glossary also defined “FUEL CELL” as “[a]n electrochemical device that converts chemical energy directly into electricity,” mirroring the definition given to a fuel cell in I.R.C. § 48. (capitalization in original). The second definition offered at trial comes from the United States Energy Information Administration’s online “GLOSSARY,” (capitalization in original), which defined “Fuel” as: “Any material substance that can be consumed to supply heat or power. Included are petroleum, coal, and natural gas (the fossil fuels), and other consumable materials, such as uranium, biomass, and hydrogen.” The same glossary also defined “Fuel cell” in relevant part as: “A device capable of generating an electrical current by converting the chemical energy of a fuel (e.g., hydrogen) directly into electrical energy.” Mr. Markell testified that he was not familiar with the Department of Energy or the Energy Information Administration glossaries of definitional terms, although he did reference the Energy Information Administration in his expert report. Moreover, despite Mr. Markell’s statement that “I’m not aware of any specific definitions provided by DOE or EIA regarding ‘fuel’ or ‘fuel cell power plant’ or specific terms relative to this case,” when asked if the “Department of Energy is a good place to look for specific definitions of matters for the energy industry,” Mr. Markell responded, “[y]ou could look there, yes.” Mr. Markell also testified that under the definitions provided by the Department of Energy and the Energy Information Administration, the anaerobic digester biogas would be a “fuel.”⁴²

The FuelCell Energy literature appears to also take a broader view of the term “fuel.” For example, the “**DFC3000™ 2.8 MW POWERPLANT SPECIFICATION SUMMARY**,” contained in the record, states that “[t]he powerplant is designed to operate on natural gas and anaerobic digester gas (with auxiliary equipment) as the fuel source.” (capitalization and emphasis in original). Mr. Leo from FuelCell Energy testified that “auxiliary equipment” refers to

a couple small modifications that are made into our existing balance of plant equipment. There’s an extra catalyst that’s added in one of the reactors to get rid of any oxygen that might be there and there’s the actual -- the extra fuel connection for the second fuel, so that’s one modification. And then there’s the -- the other auxiliary equipment would be the biogas cleanup system.

FuelCell Energy’s “**Direct FuelCell® APPLICATIONS GUIDE**” for the DFC1500 also states that “Direct FuelCell® powerplants can effectively utilize biogas or Anaerobic Digester Gas (ADG), when equipped with the appropriate ADG processing equipment.” (emphasis in original).

A review of the FuelCell Energy fuel specification document also indicates that, “[w]hile designed primarily for operation on natural gas, Direct FuelCell powerplants can

⁴² A review of the parties’ joint stipulation of fact suggests defendant’s definition of “fuel” is atypical in the industry. The parties have jointly stipulated that “[b]iogas may be discarded by burning it (in a process called ‘flaring’) or may be used as a fuel source.”

effectively utilize Anaerobic Digester Gas (ADG) . . .” as a “fuel,” when properly equipped. In the fuel specification document, **“Table 1: DCF® Fuel Major Components and Physical Properties,”** lists specifications and requirements for fuel cells operating on natural gas or anaerobic digester gas, and requires that methane comprise fifty-five to one hundred percent of the volume of the intake gas to the fuel cell. (emphasis in original).⁴³ Also in the fuel specification document, **“Table 2: Contaminant Limits for DFC® Fuels,”** lists limits of **“Total Sulfur,” “Water,” “Halogens,” “Siloxanes,” “Metals,” “Particulates,”** and **“Dust, Gum, Solid Matter,”** for both natural gas and anaerobic digester gas as an intake gas. (emphasis in original). Mr. Leo explained at trial that Table 2 of the fuel specification “defines what the cleanup system has to do,” but does not relate to the determination of raw digester gas as a fuel. On cross examination, Mr. Leo affirmed that natural gas can be blended with anaerobic digester gas and meet a third category titled **“Externally Purified Fuel Limits”** which is how the RP1 and SJ-1 fuel cells were installed. (emphasis in original). The fuel cell specification, on review, does not appear to define the term “fuel,” although the document indicates that an acceptable fuel is simply a fuel that contains at least fifty-five percent methane, and is removed of contaminants. Mr. Leo testified that the purpose of the fuel specification “is to create a mutual understanding for what we’ve designed, what kinds of fuels we have designed our equipment to use, and the limits of the bulk concentrations and contaminant concentrations that the equipment can either take without modification or can take with modification,” which was not intended to define the word “fuel.” Mr. Leo further testified regarding the fuel specification settings: “It’s what the customer has to meet before putting the fuel into our equipment without modification or some adjustment of some kind.” Mr. Leo’s comments indicate that the fuel specification does not limit what is technically allowed into the fuel cell module, just what is allowed without modification of the fuel cell module or fuel cell assembly, and, moreover, that the fuel specification can change, depending on changes in technology or the contracting relationship between the parties.

Finally, trial testimony further supports that the term “fuel” in the statute has a broader definition than just “acceptable fuel.” Mr. Sharma, from Anaergia, testified that he understood anaerobic digester gas to be a fuel because “[i]f you put a flame to it, it will burn.” Mr. Sharma also testified that the anaerobic digester gas contains methane as the fuel, and that the gas conditioning equipment’s purpose is to remove contaminants, not impact the fuel. Mr. Sharma also stated that, according to his understanding, the industry would refer to anaerobic digester gas as a fuel. Mr. Sharma noted that “Biogas has contaminants. Natural gas has contaminants. And as I said before, every fuel that has to be introduced in a fuel cell stack, which has very stringent requirements, has to be conditioned in some fashion or other.” At trial, defendant asked Mr. Sharma whether “natural gas is the reference fuel for a fuel cell,” referring to the fuel cell specification, but Mr. Sharma stated “depending on the fuel cell, it could be

⁴³ Mr. Wason testified that the minimum methane content is more likely sixty percent for the FuelCell Energy fuel cells: “some of the documents say 55, but 60 percent to get full load out of the fuel cell.”

hydrogen fuel. It could be ethanol, methanol. There are many different kind of fuel cells which run on many different fuels.”

Mr. Leo from FuelCell Energy similarly defined fuel to be “basically anything that can react with oxygen to produce thermal energy or electrical energy.” Mr. Leo testified that “[t]o me, the term ‘fuel’ is any material -- it can be a liquid. It can be a gas. It can be solid like coal -- that will react with oxygen and air to make heat.” Mr. Leo stated at trial that both natural gas and anaerobic digester biogas contain methane, and that is the fuel the fuel cells rely on. Mr. Leo further testified that “FuelCell Energy fuel cells can -- are designed to use methane as the fuel source, so they can use methane-based fuels, which would include natural gas. It would include biogas from a wastewater treatment plant. It could include things like coal mine methane, anything that is predominantly methane.”

Mr. Wason, plaintiffs’ expert, also defined anaerobic digester gas as a “fuel,” because “[i]t has normally between 60 to 65 percent methane. And that fuel can be used for a number of places like boilers, internal combustion engines, fuel cells, microturbines, gas turbines.” Mr. Wason testified that the gas conditioning equipment does not change the nature of the anaerobic digester biogas into a fuel, and added, “[i]t’s a fuel right when it comes out of the anaerobic digester because it has methane content of 60 to 65 percent and it comes out of the digester. It’s a fuel, but it’s not as clean. You go through the gas conditioning equipment. Then it becomes clean fuel suitable for fuel cell.” Mr. Wason reemphasized that during the gas conditioning process “no methane is added, which is the fuel.”

Defendant’s expert, Mr. Markell defended his position on the definition of “fuel” by focusing on the fuel specification, stating “I think ‘fuel’ has to go back to the fuel spec, so that is the material that’s actually converting into electricity, not the raw biogas.” Mr. Markell testified that the fuel cell specification, which set the limits of what is “acceptable fuel,” created a boundary in terms of the definition of fuel cell power plant, and that the equipment working with non-acceptable fuel was outside of that boundary and, therefore, not part of the fuel cell power plant. Mr. Markell further testified that the gas conditioning equipment’s different “function,” to turn the input fuel into “acceptable fuel,” prevented it from being classified as part of the fuel cell power plant: “The gas conditioning system is taking the biogas, and it is cleaning it up to turn it into an acceptable fuel, so really at that point in time the gas conditioning system is external and is not responsible for converting fuel to electricity.”

Mr. Markell indicated, however, that his definition of “acceptable fuel” could change to include anaerobic digester gas, depending on the role of FuelCell Energy in the RP1 and SJ-1 projects.

Q. I think your testimony, though, was that you believe that it did make a difference whether there was a single EPC contract that encompassed the -- where the EPC contractor was supplying both the gas

conditioning equipment and the fuel cell equipment under those circumstances.

. . .

Q. And under those circumstances you would say that the gas conditioning equipment was balance of plant.

A. If the raw biogas met the fuel specification, yes, at that point in time the gas conditioning would be part of balance of plant.

. . .

A. It all depends on the fuel specification because I'm using the fuel specification to actually define what acceptable fuel is to be converted into electricity.

Mr. Markell added that "you're redefining the term 'fuel' with a single EPC contract or you could redefine the term 'fuel' with a single EPC contract, so at that point you would end up redefining what 'plant' means."

Defendant is attempting to define "fuel" utilizing a variable term dependent upon an individual contractor's fuel specification document for a particular contract, rather than to define fuel in line with the multiple government-provided definitions referenced above, which a number of witnesses agreed at trial constituted a better approach. Although defendant asserts that the definition of fuel in the Internal Revenue Code is narrower than the definition provided by other government sources, this assertion seems unsupported by a reading of the Internal Revenue Code, other government documents, and the trial testimony. Instead, it seems more appropriate to define "fuel" broadly, as "[a]ny material that can be burned to make energy."⁴⁴

Defendant also compares the definition of "fuel cell power plant" in Section 1603(d)(2) and I.R.C. § 48, with other parts of the Internal Revenue Code, in order to

⁴⁴ Mr. Markell emphasized the importance of defendant's definition of the word "fuel" to defendant's case, and admitted that if fuel was defined in favor of plaintiffs' view, the gas conditioning equipment would be considered "balance of plant" of a "fuel cell power plant:"

Q. . . . I'm saying if, if the term "fuel" includes raw anaerobic digester gas, then your opinion would be that the gas conditioning equipment is an associated balance of plant component; is that correct?

A. If the statute specifically stated that anaerobic digester gas was acceptable, then yes.

contend that the definition of a fuel cell power plant should be read narrowly to exclude plaintiffs' gas conditioning equipment. Defendant points the court to other types of facilities covered under the Section 1603 grant program, and argues that Congress affirmatively defined a broad set of components as eligible for a Section 1603 grant for certain facility types, thereby indicating that Congress meant the opposite when defining a fuel cell power plant. Defendant notes, for example, that the definition for a "stationary microturbine power plant" under Section 1603 and in I.R.C. § 48(c)(2)(C), covers not only "associated balance of plant components which converts a fuel into electricity and thermal energy," but also "all secondary components located between the existing infrastructure for fuel delivery and the existing infrastructure for power distribution, including equipment and controls for meeting relevant power standards, such as voltage, frequency, and power factors." (quoting § 48(c)(2)). Defendant also notes that "geothermal equipment under section 48(a)(3)(A)(iii)," "includes not just electricity generation, but specifically includes all 'equipment used to produce, distribute, or use energy derived from a geothermal deposit.' § 1603(d)(5)."

Defendant argues that "where Congress wanted to include equipment beyond the 'system . . . which converts a fuel into electricity,' it simply said so," and quotes Dean v. United States, 556 U.S. 568, 573 (2009) ("[W]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." (quoting Russello v. United States, 464 U.S. 16, 23 (1983))). Defendant asserts that reading "secondary components" such as gas conditioning equipment into the definition of fuel cell power plant "would render superfluous the 'secondary components' language in the parallel microturbine definition," and quotes United States v. Commonwealth Energy System, 235 F.3d 11, 15 (1st Cir. 2000) ("As a general rule, a statute should be construed so that each part is given effect and no part is rendered inoperative or superfluous.").

Plaintiffs reply that "Congress did not signal a narrower definition for qualified fuel cell property in defining 'qualified microturbine property' in Code § 48(c)(2)." According to plaintiff:

Congress felt compelled to make clear what that definition specifically includes in addition to the general components listed in the principal part of the definition. That may be a result of the unique nature of microturbines which require an additional set of electrical equipment to meet power standards and because of the potential overlap with non-qualified electrical transmission equipment. If anything, what this shows is that Congress intended to define the "integrated system" for fuel cell and microturbine properties to include gas conditioning equipment as balance of plant, not exclude it for fuel cell properties.

Plaintiffs also note that defendant's new argument contradicts its earlier contention, that "fuel" is to be defined according to the FuelCell Energy fuel specification: "The Government's position suggests that Congress adopted a definition for the microturbine

power plant that does not depend on the equipment manufacturer's fuel specifications and includes 'external' equipment such as gas conditioning equipment—even though the exact same language is used."

The court notes that the United States Supreme Court has limited the Russello holding on statutory construction. In City of Columbus v. Ours Garage and Wrecker Service, Inc., 536 U.S. 424, 425 (2002), the United States Supreme Court stated: "The Russello presumption—that the presence of a phrase in one provision and its absence in another reveals Congress' design—grows weaker with each difference in the formulation of the provisions under inspection." In addition, the United States Supreme Court has indicated that the Russello direction has to be considered in the overall light of congressional intent, and that reviewing courts should "look not only to the particular statutory language, but to the design of the statute as a whole and to its object and policy." Negusie v. Holder, 555 U.S. 511, 519 (2009) (quoting Dada v. Mukasey, 554 U.S. 1, 16 (2008) (quoting Gozlon-Peretz v. United States, 498 U.S. 395, 407 (1991))).

Directly below the definition for "**Qualified fuel cell property**" in I.R.C. § 48(c)(1) is the definition for "**Qualified microturbine property**." See I.R.C. § 48(c)(2) (emphasis in original). According to the statute, "[t]he term 'qualified microturbine property' means a stationary microturbine power plant," which meets a number of size and placed in service date requirements. See id. A "stationary microturbine power plant" is defined as:

(C) Stationary microturbine power plant

The term "stationary microturbine power plant" means an integrated system comprised of a gas turbine engine, a combustor, a recuperator or regenerator, a generator or alternator, and associated balance of plant components which converts a fuel into electricity and thermal energy. Such term also includes all secondary components located between the existing infrastructure for fuel delivery and the existing infrastructure for power distribution, including equipment and controls for meeting relevant power standards, such as voltage, frequency, and power factors.

I.R.C. § 48(c)(2) (emphasis in original). For reference, a "fuel cell power plant" is defined as the following:

(C) Fuel cell power plant

The term "fuel cell power plant" means an integrated system comprised of a fuel cell stack assembly and associated balance of plant components which converts a fuel into electricity using electrochemical means.

I.R.C. § 48(c)(1). Although the "stationary microturbine power plant" definition does have an additional sentence, defendant's reliance on Russello does not resolve the issue. The definition for "stationary microturbine power plant" covers a completely different type of energy property to the one at issue before this court, and, thus,

defendant's attempt to make a direct statutory language comparison, is limited. See City of Columbus v. Ours Garage and Wrecker Serv., Inc., 536 U.S. at 425 ("The Russello presumption—that the presence of a phrase in one provision and its absence in another reveals Congress' design—grows weaker with each difference in the formulation of the provisions under inspection."). Plaintiffs contend that microturbine power plants "require an additional set of electrical equipment to meet power standards," and that characteristic explains the additional sentence. The court notes that the specific "secondary components" referenced in the microturbine definition are electrical in nature, "including equipment and controls for meeting relevant power standards, such as voltage, frequency, and power factors," which can be used to support plaintiffs' argument that the additional sentence in the microturbine power plant definition relates to specific electrical components unique to microturbines. See I.R.C. § 48(c)(2)(C). Given that gas conditioning equipment is a mechanical/chemical component that does not play a role in "meeting relevant power standards," defendant's argument does not rule out that a fuel cell assembly's "balance of plant components which converts a fuel into electricity" can include gas conditioning equipment, for both fuel cell or microturbine facilities.

Regarding defendant's reference to geothermal facilities, Section 1603 offers two means by which a geothermal facility can be awarded a grant. Section 1603(d)(1) offers a blanket grant to, as stated in I.R.C. § 45(d)(4), any "facility using geothermal or solar energy to produce electricity." See I.R.C. § 45(d)(4). In addition, under Section 1603(d)(5), a grant is available for a "GEOTHERMAL PROPERTY," (capitalization in original), which contains, as stated in I.R.C. § 48(a)(3)(A)(iii), "equipment used to produce, distribute, or use energy derived from a geothermal deposit (within the meaning of section 613(e)(2)), but only, in the case of electricity generated by geothermal power, up to (but not including) the electrical transmission stage." See I.R.C. § 48(a)(3)(A)(iii). It is immediately apparent that this definition shares little in common with the definition for a "fuel cell power plant," again reducing the value of the comparison defendant seeks to make. See City of Columbus v. Ours Garage and Wrecker Serv., Inc., 536 U.S. at 425.

Defendant, alternatively, steps back to look more broadly at the relationship between Section 1603 and the two sections of the Internal Revenue Code, I.R.C §§ 45 and 48. According to defendant, there are "two general types of energy property that may qualify under § 1603: projects that qualify because of their fuel source and property that qualifies as a specified type of energy generation property." Defendant maintains that the first category of energy property is governed by I.R.C. § 45, which, according to defendant, addresses projects "generating electricity from a qualifying fuel source." See Section 1603(d)(1). I.R.C. § 45 is referenced in Section 1603(d)(1), which allows a grant for property "which is part of a qualified facility (within the meaning of section 45 of such Code) described in paragraph (1), (2), (3), (4), (6), (7), (9), or (11) of section 45(d) of such Code." Id. Defendant maintains that "[t]he second category" of eligible facilities "includes other specified energy property defined in [I.R.C.] § 48," citing to Section 1603(d)(2)–(8). According to defendant, projects eligible for a grant under I.R.C. § 48 are narrowly defined: "The narrow definition of 'qualified fuel cell property' is dictated by

the statutory structure.” Defendant adds: “Section 45 property need only generate electricity from a specified source, but § 48 property, regardless of whether it is integral, qualifies only to the extent that it meets the specific relevant statutory definition in § 48.” Defendant also states:

This distinction is borne out in the legislative history of § 1603, which states that it provides payments to energy property that is either (1) “an electricity production facility” otherwise eligible for the renewable electricity production credit (§ 45) or (2) qualifying property otherwise eligible for the investment tax credit (§ 48). H.R. Rep. No. 111-16, at 620-21 (Feb. 12, 2009) (Conf. Rep.).

Plaintiffs respond that the opposite is true if anything, and that facilities defined under I.R.C. § 48, are more broadly defined than facilities under I.R.C. § 45. According to plaintiff:

§ 45 facilities have been construed narrowly to exclude property that is normally included in ITC [investment tax credit, I.R.C. § 48] basis. The historical reason for this is the narrower definition of facility allows existing facilities to be “requalified” with a new placed-in-service date in certain situations. For example, in Notice 2008-60, § 3.01(1), 2008-2 C.B. 178, 179, which Mr. Settle mentioned in his testimony (Tr. 383:14-25), the IRS defined the components of the facility narrowly to exclude, among other things, fuel processing equipment and roads. This rule is confined to the PTC [production tax credit] under § 45 and did not carry over to the ITC or Section 1603 for biomass facilities.

(footnote omitted). Plaintiffs state that “[t]here is no evidence that Congress intended to establish a more generous regime for the narrower § 45 facilities than for the historically broader § 48 facilities.”

Moreover, defendant’s argument does not alter the court’s understanding of the term “QUALIFIED FUEL CELL PROPERTY” under Section 1603(d)(2), arrived at through traditional tools of statutory interpretation. (emphasis in original). Even assuming, as defendant argues, that “fuel cell power plant” under I.R.C. § 48(c) is to be defined narrowly and, as defendant states, “only to the extent that it meets the specific relevant statutory definition in § 48,” plaintiffs still have demonstrated to the court that the gas conditioning equipment meets the statutory definition of “fuel cell power plant” under I.R.C. § 48, and, thus, is a “QUALIFIED FUEL CELL PROPERTY” under Section 1603(d)(2). (emphasis in original).

The record, therefore, indicates that plaintiffs’ gas conditioning equipment is part of “an integrated system comprised of a fuel cell stack assembly and associated balance of plant components which converts a fuel into electricity using electrochemical means.” I.R.C. § 48(c)(1)(C). The key terms in the statute, “integrated system,” “balance of plant,” and “fuel,” should be understood to include the components necessary to the

fuel cell facilities' intended operation on anaerobic digester biogas. The government's decision at the administrative level to not consider gas conditioning equipment as part of a "fuel cell power plant" also appears to have been driven by the fact that the RP1 and SJ-1 facilities were unique compared to the majority of projects reviewed by NREL. The court considers the gas conditioning equipment at issue in this case as part of a "fuel cell power plant," and, thus, as part of a "QUALIFIED FUEL CELL PROPERTY" under Section 1603(d)(2). (capitalization in original). Therefore, the court holds that the thirty percent grant should have been awarded to the RP1 and SJ-1 facilities, including for the gas conditioning equipment.

Plaintiffs also make an alternative argument for why the RP1 and SJ-1 gas conditioning equipment should be covered under the Section 1603 grant program, this time, relying not on the statutory language, but rather on the Treasury Regulations and a Treasury Guidance document issued by Treasury related to the Section 1603 grant program. According to plaintiffs,

Longstanding regulations under the ITC [investment tax credit, I.R.C. § 48] provide that tangible property that is an "integral part" of certain qualifying activities, including the furnishing of electricity, qualify for the ITC even if such property performs an ancillary function to the principal equipment (e.g., generating equipment).

(citing Treas. Reg. § 1.48-1(d)(4)). Plaintiffs note that the term "integral part" has been defined broadly, citing New England Electric System v. United States, 28 Fed. Cl. 720, 725 (1993). Plaintiffs maintain that Treasury in its Treasury Guidance adopted an "integral part" test as an alternative means to qualify a component of an energy property under Section 1603.

The Department of the Treasury issued guidance documents titled **"Payments for Specified Energy Property in Lieu of Tax Credits under the American Recovery and Reinvestment Act of 2009 Program Guidance,"** which the parties submitted as a joint exhibit. (emphasis in original). In his testimony, Mr. Settle from NREL discussed the Treasury Guidance, and described it as "essentially a guide that was put together by the Department of Treasury so applicants would understand how they were administering the program." Mr. Settle also indicated it was considered by both NREL and Treasury in their review of applications. The Treasury Guidance, in defining the global term "SPECIFIED ENERGY PROPERTY", of which "QUALIFIED FUEL CELL PROPERTY" is one type, see Section 1603(d), stated that a "specified energy property" includes "only tangible property (not including a building) that is an integral part of the facility."⁴⁵ On the same page, the Treasury Guidance defines "integral part" as:

⁴⁵ The guidance document continues, "tangible property is tangible personal property and other tangible property as defined in sections 1.48-1(c) and (d) of the Income Tax Regulations." Treas. Reg. § 1.48-1(c) defines "tangible personal property" to include,

Property is an integral part of a qualified facility if the property is used directly in the qualified facility and is essential to the completeness of the activity performed in that facility. Roadways and paved parking areas located at the qualified facility and used for transport of material to be processed at the facility or equipment to be used in maintaining and operating the facility are integral to the activity performed [sic] there, but roadways or paved parking lots that provide solely for employee and visitor vehicle traffic are not an integral part [sic] a qualified facility. Property is considered used as an integral part of a qualified facility if so used either by the owner of the property or by the lessee of the property.

. . .

For qualified property that generates electricity, qualified property includes storage devices, power conditioning equipment, transfer equipment, and parts related to the functioning of those items but does not include any electrical transmission equipment, such as transmission lines and towers, or any equipment beyond the electrical transmission stage, such as transformers and distribution lines.

Plaintiffs argue:

any tangible property except land and improvements thereto, such as buildings or other inherently permanent structures (including items which are structural components of such buildings or structures). . . . Further, all property which is in the nature of machinery (other than structural components of a building or other inherently permanent structure) shall be considered tangible personal property even though located outside a building. Thus, for example, a gasoline pump, hydraulic car lift, or automatic vending machine, although annexed to the ground, shall be considered tangible personal property.

Treas. Reg. § 1.48-1(d) defines “other tangible property” to include tangible property

used as an integral part of manufacturing, production, or extraction, or as an integral part of furnishing transportation, communications, electrical energy, gas, water, or sewage disposal services by a person engaged in a trade or business of furnishing any such service, or which constitutes a research or storage facility used in connection with any of the foregoing activities.

The parties do not appear to dispute whether the gas conditioning equipment would qualify as tangible personal property or other tangible property under Treasury Regulation § 1.48-1.

Surely, if the roads in a fuel cell power project qualify for the grant, which by the Government's account have nothing to do directly with generating electricity but are integral to its operation, then it follows that the gas conditioning equipment has to be an integral part of the fuel cell power plant since it cannot operate for its intended use with digester gas without this equipment.

The Treasury Guidance appears to be based on the test for "*Integral part*" from Treasury Regulation § 1.48-1(d)(4) (emphasis in original), which states "Property is used as an integral part of one of the specified activities if it is used directly in the activity and is essential to the completeness of the activity." See Treas. Reg. § 1.48-1(d)(4).

Defendant initially argues that the court should not rely on the "integral part" definition in Treasury Regulation § 1.48(d)(4) because it was promulgated in reference to a part of I.R.C. § 48 that was subject to a 1990 sunset provision. Defendant states: "The only broader reference to the 'integral part' test is contained in regulations (Treas. Reg. § 1.48-1) that were based on a statute that was repealed in 1990." Plaintiffs reply that "the 'integral part' standard has been a fixture of the ITC going back to 1964, when those regulations were first promulgated." The relevant reference, however, is to Treasury's guidance document issued for the Section 1603 program, which, itself, happens to have been based on the language of Treasury Regulation § 1.48-1(d)(4). The court notes that, although the underlying provision of the Internal Revenue Code related to the "integral part" test may have been subject to sunset, the regulation still exists, and appears to be in use today.

Defendant also contends that the "integral part" test referenced in the Treasury Guidance does not expand what can be part of a qualified facility under Section 1603, but, actually, is a limitation: "it is a threshold for qualifying, not an expansion of what qualifies. In other words, it disqualifies pieces from otherwise qualifying property." Defendant states that "[I.R.C.] Section 48 property (including fuel cell power plant and microturbines), regardless of whether it is integral, qualifies only to the extent that it meets the specific delimiting language of the relevant statutory definition in § 48 (an 'integrated system . . . which converts a fuel to electricity')." ⁴⁶ Defendant also reminds the court that the term "integral part" is not in the statute. Plaintiffs respond that "it is counterintuitive to suggest that ITC facilities are not subject to the "integral part"

⁴⁶ The Treasury Guidance states that "[s]pecified energy property includes only tangible property (not including a building) that is an integral part of the facility." Although defendant may be correct that the "integral part" clause is a limit to what can be considered as eligible for a Section 1603 grant, and a component "integral" to an already qualified specified energy property is not automatically eligible for a Section 1603 grant, the "integral part" standard "is a threshold for qualifying, not an expansion of what qualifies," and the various statutory requirements of Section 1603 must be met independently to qualify for a Section 1603 grant.

standard when that standard originates from the ITC regulations, see Treas. Reg. § 1.48-1(d)(4).” (emphasis in original).

The Treasury Guidance described and quoted, in part, above, was created for the Section 1603 program for the purpose of educating potential applicants. In addition, Mr. Settle, from NREL, noted that NREL referenced the guidance in its decision making. Mr. Settle stated:

Q. And is NREL and Treasury required to follow this guidance document in reviewing applications?

A. I would say it's a part of our review process, but underlying it all is section 45 and 48, so there are times when that clarification is needed between what the guide actually says and what's actually in the code or in tax policy.

Q. But if something is stated in the guidance document, that's generally going to be followed by both NREL and Treasury; correct?

A. I'd say generally, yes.

According to the Treasury Guidance, “[p]roperty is an integral part of a qualified facility if the property is used directly in the qualified facility and is essential to the completeness of the activity performed in that facility.” Mr. Settle from NREL further testified that the team considered whether something was an “integral part” of a qualified facility under this definition. At trial, Mr. Settle discussed the example of roadways in the Treasury Guidance, quoted above, stating that NREL and the Department of the Treasury considered roadways as part of a project's cost basis and integral to the project when they “are necessary for, for example, getting from one wind turbine to another wind turbine. We have disallowed those which basically have to do with visitors, employee parking, and so forth.” Even Mr. Markell, defendant's expert witness, was asked if the gas conditioning system was “integral” to the RP1 and SJ-1 projects, and responded in the affirmative: “In the way that I see the term ‘project’ defined as including all of the equipment under UTS, I would say yes, it is integral.” Given that Mr. Markell later agreed that “plant” can be seen to be the same as “project,” defendant's own expert witness essentially indicated that the gas conditioning equipment is “integral” to a fuel cell power plant. A review of the trial record supports this conclusion.

Trash Facility

The parties jointly stipulate that the second issue before the court is “alternatively, whether the gas conditioning equipment, either in combination with the other equipment in the projects or individually, qualifies for payment as a qualified facility under § 1603(d)(1) as a ‘trash facility’ as defined by 26 U.S.C. § 45(d)(7).” Section 1603(d)(1) allows a thirty percent grant for:

(1) QUALIFIED FACILITIES.—Any qualified property (as defined in section 48(a)(5)(D)[⁴⁷] of the Internal Revenue Code of 1986) which is part of a qualified facility (within the meaning of section 45 of such Code) described in paragraph (1), (2), (3), (4), (6), (7), (9), or (11) of section 45(d) of such Code.

(capitalization in original). Relevant to the court's analysis, Section 1603(d)(1) allows grants for "QUALIFIED FACILITIES" that meet the requirements regarding energy facilities discussed in any of the paragraphs, (1), (2), (3), (4), (6), (7), (9), or (11) of I.R.C. § 45(d) (2012). (capitalization in original). Looking at one of the paragraphs, I.R.C. § 45(d)(7), in particular:

(7) Trash facilities

In the case of a facility (other than a facility described in paragraph (6)) which uses municipal solid waste to produce electricity, the term "qualified facility" means any facility owned by the taxpayer which is originally placed in service after the date of the enactment of this paragraph and the construction of which begins before January 1, 2015.^[48] Such term shall include a new unit placed in service in connection with a facility placed in service on or before the date of the enactment of this paragraph, but only

⁴⁷ I.R.C. § 48(a)(5)(D) states:

(D) Qualified property

For purposes of this paragraph, the term "qualified property" means property—

(i) which is—

(I) tangible personal property, or

(II) other tangible property (not including a building or its structural components), but only if such property is used as an integral part of the qualified investment credit facility

(ii) with respect to which depreciation (or amortization in lieu of depreciation) is allowable.

I.R.C. § 48(a)(5)(D) (2012) (emphasis in original).

⁴⁸ Section 155 of the Tax Increase Prevention Act of 2014 more recently amended I.R.C. § 45(d)(7) by striking "January 1, 2014" and inserting "January 1, 2015." See Tax Increase Prevention Act of 2014, Pub. L. No. 113-295, 128 Stat. 4010, 4021.

to the extent of the increased amount of electricity produced at the facility by reason of such new unit.

I.R.C. § 45(d)(7) (2012) (emphasis in original); see also Tax Increase Prevention Act of 2014, Pub. L. No. 113-295, 128 Stat. 4010, 4021 (amending I.R.C. § 45(d)(7) by striking “January 1, 2014” and inserting “January 1, 2015.”). I.R.C. § 45(d)(6) covers: “**(6) Landfill gas facilities**,” which are facilities “producing electricity from gas derived from the biodegradation of municipal solid waste” (emphasis in original). In the same section 45 of the Internal Revenue Code, I.R.C. § 45(c)(6) states: “The term ‘municipal solid waste’ has the meaning given the term ‘solid waste’ under section 2(27) of the Solid Waste Disposal Act (42 U.S.C. 6903).” Solid waste is defined in 42 U.S.C. § 6903(27) as:

The term “solid waste” means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 1342 of title 33,

or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923) [42 U.S.C. 2011 et seq.].

42 U.S.C. § 6903(27) (2012) (brackets in original).

Plaintiffs contend that, “[u]nder Code § 45(d)(7), as incorporated into Section 1603(d)(1), a ‘trash facility’ means ‘a facility (other than a facility described in paragraph (6) [i.e., a landfill gas facility]) which uses municipal solid waste to produce electricity.’” Plaintiffs contend that the only item in dispute is whether the wastewater treatment plants that the RP1 and SJ-1 facilities rely on for biogas treat “municipal solid waste.” According to plaintiffs:

For this purpose, the term “sludge” is defined expressly as “any solid, semisolid or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effects.” 42 U.S.C. 6903(26A). Thus, “sludge from a wastewater treatment plant” is “solid waste” under the Solid Waste Disposal Act and, by incorporation, “municipal solid waste” under Code § 45(c)(6) and (d)(7).

Plaintiffs also point out that the definition of solid waste explicitly includes “sludge from a waste treatment plant.” Plaintiffs assert that “[t]he wastewater sludge at the Inland Empire and San Jose wastewater plants is a ‘municipal waste,’” and, therefore, because

the RP1 and SJ-1 facilities take biogas, which is formed from treating municipal solid waste, they meet all the requirements of I.R.C. § 45(d)(7) to be termed a “trash facility,” and are “QUALIFYING FACILITIES” under Section 1603. (capitalization in original). Plaintiffs also cite to NREL’s Mr. Settle’s trial testimony and allege, “Mr. Settle in fact conceded that Treasury and NREL would award the grant for the gas conditioning equipment if it were a trash facility.”

Plaintiffs further cite to a recent IRS Revenue Ruling, Private Letter Ruling 201419006 (May 9, 2014), which plaintiffs allege “supports treating wastewater sludge as ‘municipal solid waste’ for purposes of the trash facility definition.” In addition, plaintiffs point to the Treasury Guidance for the Section 1603 program, and argue:

More importantly, in the case of a trash facility, Treasury’s guidance document states specifically: “If the facility uses a gas or liquid derived from open-loop biomass, closed-loop biomass, or municipal solid waste to produce electricity, equipment used to produce and process such gas or liquid may also be an integral part of the facility.” Under these rules, the gas conditioning equipment would be treated as an “integral part” of the trash facility.

(internal citations omitted).

Relevant to this court’s analysis, under Section 1603(d)(1), a thirty percent grant is available to “[a]ny qualified property . . . described in paragraph (1), (2), (3), (4), (6), (7), (9), or (11) of [I.R.C.] section 45(d) of such Code.” As noted above, paragraph (7) of I.R.C. § 45(d) includes as a “**Trash facilit[y]**” a “facility,” other than a landfill gas facility “which uses municipal solid waste to produce electricity,” provided the facility meets some placed in service requirements discussed further below in this opinion.⁴⁹ See I.R.C. § 45(d)(7).

⁴⁹ The statute also states that, within an existing “trash facility,” “the term ‘qualified facility’ means any facility owned by the taxpayer which is originally placed in service after the date of the enactment of this paragraph and the construction of which begins before January 1, 2015.” This language does not indicate that the trash facility has to be owned entirely by the taxpayer, but instead, that the taxpayer will only be able to recover a grant on the “qualified facility” that it owns. See I.R.C. § 45(d)(7). As indicated by Mr. Settle at trial,

Q. Okay. And so just to go back to my question, does the ownership of the actual fuel source have any relevance to the determination of whether in this case the production or processing or the processing equipment is eligible for a Treasury grant?

A. No. I think you could actually take a gas or liquid produced from one of those facilities and use it in your energy property and qualify it.

Although the RP1 and SJ-1 facilities do not take in any municipal solid waste because they operate on biogas, plaintiffs contend that the anaerobic digesters, which process allegedly “municipal solid waste,” also count as part of a “[t]rash facilit[y]” for the purposes of I.R.C. § 45(d)(7), even though plaintiffs do not own them. In support, plaintiffs contend that a document titled: **“Payments for Specified Energy Property in Lieu of Tax Credits Under the American Recovery and Reinvestment Act of 2009 FREQUENTLY ASKED QUESTIONS AND ANSWERS,”** (capitalization and emphasis in original), issued by the Department of the Treasury and submitted as a joint exhibit, explains “that a trash facility qualifies for the Section 1603, even if the equipment used to convert the municipal solid waste into a gas or liquid (i.e., ‘conversion equipment’) is under different ownership.” One question and answer addresses eligibility for a Section 1603 grant for a trash facility when the “conversion equipment” (or the “equipment used to produce the gas or liquid,” in this case, the anaerobic digester) is owned by a separate, third party:

Question: In the case of a qualified facility that produces electricity by burning gases or liquids derived from a qualified energy resource such as open-loop biomass or municipal solid waste, can the equipment used to convert the qualified energy resource into a gas or liquid qualify for a Section 1603 payment?

Answer: Yes, but only if the equipment used to produce the gas or liquid (the conversion equipment) is an integral part of the qualified facility. In general, conversion equipment that is owned by the same person and located at the same site as the qualified facility will be treated as an integral part of the facility. In addition, the conversion equipment may be treated as an integral part of the qualified facility, even if under different ownership or at a different site, if it is established that the conversion equipment is integrated into the facility. Factors that may be relevant in determining whether the conversion equipment is integrated into the facility include whether the conversion equipment and the facility are placed in service simultaneously, the extent to which the gas or liquid produced is dedicated to the facility (for example, under an exclusive long-term supply contract), and the dependence of the facility on the gas or liquid produced by the conversion equipment. Conversion equipment generally will not be treated as an integral part of a qualified facility if less than 75 percent of the gas or liquid produced is dedicated to the facility. In addition, if conversion equipment is treated as an integral part of a qualified facility but not all the gas or liquid produced is dedicated to that facility, the conversion equipment’s eligible cost basis is limited to the percentage of its otherwise eligible cost corresponding to the percentage of its production that is dedicated to the qualified facility.

(emphasis in original). The **“FREQUENTLY ASKED QUESTIONS AND ANSWERS,”** (capitalization and emphasis in original), indicate that the anaerobic digester can be

combined with plaintiffs' fuel cell facilities for the purpose of forming a "[t]rash facilit[y]," (emphasis in original), under I.R.C. § 45(d)(7), "if it is established that the conversion equipment is integrated into the facility." The statute, I.R.C. § 45(d)(7), is silent as to whether all the parts of a trash facility must be owned by a single person to qualify, and the trial testimony indicates that the government, including Mr. Settle did not believe this was the case. The factors listed by Treasury in their Frequently Asked Questions are instructive regarding whether the RP1 and SJ-1 fuel cell facilities were "integrated" with the adjacent located anaerobic digesters. Although the anaerobic digesters were put into operation at the IEUA Regional Plant No. 1 and San Jose Water Pollution Control plant long before the RP1 and SJ-1 facilities were built there, the record indicates that the RP1 and SJ-1 fuel cell facilities operate almost entirely on the biogas from anaerobic digesters, and the only source of anaerobic digester biogas for the RP1 and SJ-1 facilities comes from the anaerobic digesters within the IEUA Regional Plant No. 1 and San Jose Water Pollution Control Plant. Thus, the anaerobic digesters at the RP1 and SJ-1 sites, according to the factors listed by Treasury, appear, based on the record before the court, to be integrated with the fuel cell facilities at those sites.⁵⁰

The record reflects that the adjacent anaerobic digesters and RP1 and SJ-1 fuel cell facilities can be considered, in combination, as one integrated unit. Nonetheless, in order to be a qualified trash facility, this combination must still be one "which uses municipal solid waste to produce electricity." The parties stipulate that "[w]astewater sludge" is a "by-product of the treatment of municipal wastewater, which may be used to produce biogas in anaerobic digesters." Defendant's expert, Mr. Markell, stated that "wastewater sludge" "goes into the anaerobic digesters to produce biogas." The parties also stipulated that "[s]ludge" is a "[g]eneric term that may include municipal sewage sludge, wastewater sludge, and/or biosolids." The record indicates that "biosolids" is a term used by plaintiffs' expert, Mr. Wason, as well as by Anaergia and the IEUA to describe the material that enters into an anaerobic digester.⁵¹ As previously noted

⁵⁰ As noted above, case law suggests that facilities can be considered "integrated" when they are essential to the operation of each other. See Armstrong World Indus., Inc. v. Comm'r, 974 F.2d at 434 (Two components are "integrated" "when each component is essential to the operation of the project as a whole and cannot be used separately to any effect."); Consumers Power Co. v. Comm'r, 89 T.C. at 726 ("In our opinion, based on the foregoing, the Ludington Plant must be viewed as one integrated unit because the physical plant and the reservoir operate simultaneously and as a unit in order to produce electrical power."). Both the anaerobic digester and fuel cell facility would be necessary to create a "[t]rash facilit[y]" "which uses municipal solid waste to produce electricity." See I.R.C. § 45(d)(7). The anaerobic digester is necessary to convert the municipal solid waste into biogas, and the fuel cell facility is necessary to convert the biogas into electricity.

⁵¹ In the record, including in Mr. Wason's expert report, biosolids or "[w]astewater sludge" are the products of a "[W]astewater [T]reatment" facility, which are then sent to an anaerobic digester for further processing and conversion into biogas.

above, I.R.C. § 45(c)(6) states: “[t]he term ‘municipal solid waste’ has the meaning given the term ‘solid waste’ under section 2(27) of the Solid Waste Disposal Act (42 U.S.C. 6903).” Again, for reference, solid waste is defined in 42 U.S.C. § 6903 as follows:

The term “solid waste” means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 1342 of title 33, or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923) [42 U.S.C. 2011 et seq.].

42 U.S.C. § 6903(27) (2012) (brackets in original). From a reading of the words of the statute, a number of the categories fit within the definition of “solid waste” in 42 U.S.C. § 6903(27), including, “sludge from a waste treatment plant” or “water supply treatment plant,” “garbage,” or discarded “solid, liquid, semisolid” waste resulting from community activities. See id.

The court also notes that Mr. Markell, in his expert report for the defendant, gave alternate definitions for “Municipal Solid Waste” and for “Municipal Sewage Sludge.” According to Mr. Markell’s report:

In the power industry it is more common to see trash more specifically defined as one of the following:

- Municipal Solid Waste (“MSW”) – The U.S. Environmental Protection Agency defines MSW as *“Municipal Solid Waste (MSW)—more commonly known as trash or garbage—consists of everyday items we use and then throw away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. This comes from our homes, schools, hospitals, and businesses.”*
- Municipal Sewage Sludge (“MSS”) –typically viewed as sewage or solid waste from wastewater treatment facilities (treated MSS is commonly called Biosolids).

(emphasis in original). Notably, Mr. Markell in his expert report appears to refer to the “[b]iosolids” produced from wastewater treatment facilities, which are then sent to anaerobic digesters for further processing, as “solid waste.” Furthermore, in response to a question and at trial, Mr. Markell indicated that anaerobic digesters process municipal solid waste.

Q. Do you agree that the wastewater sludge at the Inland Empire and San Jose wastewater plants is a municipal waste?

A. I think that's a viable definition. Yes.

Mr. Markell also agreed at trial that anaerobic digester biogas is produced "from the anaerobic digestion of the solids in that wastewater sludge." Plaintiffs point the court to an EPA publication, "Identification of Non-Hazardous Secondary Materials That Are Solid Waste," 76 Fed. Reg. 15456, 15514 (Mar. 21, 2011), which states "EPA has long viewed sewage sludge generated from POTWs [Publicly Owned Treatment Works] as a solid waste."⁵²

Defendant, in a footnote in its brief, contends that "[i]t is far from clear that the sludge would qualify under the RCRA [Resource Conservation and Recovery Act] definition, which refers to 'sludge from a waste treatment plant,'" quoting 42 U.S.C. § 6903(27). Defendant alleges that "Plaintiffs would need to demonstrate both that it is a waste and that it is 'generated from' a POTW, as opposed to being generated 'during treatment.'" As indicated in Mr. Wason's expert report for plaintiffs, and from the record, including a diagram in the record, however, the "sludge" or "[b]iosolids" entering an anaerobic digester have already been treated, and are not "in treatment." Moreover, as explained above, anaerobic digesters are not required at a waste water treatment plant. Instead, they help to reduce the mass of treated materials, and produce biogas for electricity. The sludge that enters an anaerobic digester already has been treated by a wastewater treatment facility, and, thus, meets the definition of "sludge from a waste treatment plant." 42 U.S.C. § 6903(27). A review of the record and statutes, therefore, indicates that the sludge, wastewater sludge and biosolids that enter an anaerobic digester fit within the definition of solid waste under 42 U.S.C. § 6903(27), and are municipal solid waste under I.R.C. § 45(c)(6). As a result, the RP1 and SJ-1 fuel cell facilities, "integrated" with the anaerobic digesters at the IEUA Regional Plant No. 1 and San Jose Water Pollution Control Plant, qualify as "[t]rash facilities" pursuant to I.R.C. § 45(d)(7). (emphasis in original).⁵³

⁵² As defendant itself notes, both the IEUA and San Jose Water Pollution Control Plant are Publicly Owned Treatment Works, which means they are publicly owned wastewater treatment facilities. See also Vocabulary Catalog List Detail - Environmental Issues Terms & Acronyms, Env'tl. Prot. Agency, http://ofmpub.epa.gov/sor_internet (last visited Mar. 31, 2015).

⁵³ Plaintiffs also provided an IRS Private Letter Ruling which plaintiffs allege "supports treating wastewater sludge as 'municipal solid waste' for purposes of the trash facility definition." The May 9, 2014 ruling addresses an issue similar to the case currently before the court. According to the letter, the taxpayer "will use sludge from an adjacent sewage treatment plant owned by the Water District (Water District Plant) as well as sludge imported from other sewage treatment facilities as fuel to produce renewable electricity." IRS Priv. Ltr. Rul. 201419006 (May 9, 2014). The taxpayer sought a

Looking back to why NREL and the government did not, during their Section 1603 review at the administrative level, credit plaintiffs' facilities as trash facilities, it appears that primarily it was because plaintiffs did not check the box for trash facility on their Section 1603 applications. Therefore, the defendant's agency evaluators did not consider whether the RP1 and SJ-1 facilities could be "integrated" with the anaerobic digesters, and, in combination, thus meet the requirements of I.R.C. § 45(d)(7). In addition, Mr. Settle, from NREL, when evaluating the RP1 and SJ-1 applications, stated that: "We'd concluded that it was not qualified as a trash facility. It was not consuming, from our perspective, municipal solid waste. It was actually taking digester gas into the plant." Mr. Settle further testified: "I think there was a letter from them at some point that basically said, you know, we're taking in municipal liquid waste, but we didn't find that they were actually taking in waste at all. They were taking digester gas." Mr. Markell in his expert report for the defendant and in his testimony apparently came to a similar conclusion, and discounted that the anaerobic digester could have been considered in the trash facility analysis:

Q. And was it relevant to your conclusion there that the projects -- that the -- as you indicated on the chart earlier, that the project boundary starts at the biogas?

A. That was relevant because the project itself is not dealing with the solid sludge, sewage sludge, so they really aren't dealing with any direct waste products.

Mr. Markell admitted at trial, however, that his analysis was not based on a reading of the Internal Revenue Code or Solid Waste Disposal Act.

In its submissions to the court, defendant only briefly addresses whether or not RP1 and SJ-1 could qualify as a "[t]rash facilit[y]" under I.R.C. § 45(d)(7).⁵⁴ Defendant

determination of whether parts of its energy facility "are part of the 'qualified facility' for purposes of § 45(d)(7)." Id. Plaintiffs contend that "[t]he IRS accepted the taxpayer's representation 'that the sludge that will be used as a fuel in the Plant is "solid waste" within the meaning of the Solid Waste Disposal Act (42 U.S.C. § 6903).'" A review of the ruling indicates that because the taxpayer affirmatively "represented that the sludge that will be used as a fuel in the Plant is 'solid waste' within the meaning of the Solid Waste Disposal Act (42 U.S.C. § 6903)," the IRS appears not to have debated the issue and to have taken the taxpayer's representation at face value.

⁵⁴ Notably, defendant does not argue that the anaerobic digesters cannot be considered "integrated" with the RP1 and SJ-1 projects to form a trash facility under I.R.C. § 45(d)(7). Defendant also does not question whether the gas conditioning equipment would count as part of a trash facility under I.R.C. § 45(d)(7). Regarding the latter issue, the Section 1603(d)(1) "qualified facility" definition explicitly states that it includes "[a]ny qualified property (as defined in section 48(a)(5)(D) of the Internal Revenue Code of

raises a number of arguments. Defendant first contends that the sites RP1 and SJ-1, which operate at the IEUA Regional Plant No. 1, and the San Jose Waste Pollution Control Plant, are not properly regulated in order to be termed “trash facilities.” According to defendant:

The wastewater treatment plants, or POTWs [Publicly Owned Treatment Works], at which the projects are installed, are not regulated by the relevant state agency (to which RCRA regulatory authority is delegated) as facilities that handle solid waste. Instead, POTWs like the ones at which the projects are installed are regulated under the Federal Water Pollution Control Act (also known as the Clean Water Act or “CWA”).

(internal citations omitted). According to defendant, “RCRA, which includes the definition of solid waste that applies to trash facilities, specifically states that it shall not be construed to apply to “any *activity* or *substance* which is subject to the Federal Water Pollution Control Act [Clean Water Act] . . .” pursuant to 42 U.S.C. § 6905(a). (emphasis in original). Defendant states that “Plaintiffs’ attempt to define solid waste to include sewage sludge that is plainly regulated by the Clean Water Act would seem to run afoul of that provision.” According to defendant, plaintiffs are excluded from defining the sludge and biosolids handled by the anaerobic digesters connected to RP1 and SJ-1 as “solid waste” under RCRA, which is a prerequisite for the RP1 and SJ-1 facilities to be termed “trash facilities.”

Plaintiffs initially respond that the IEUA Regional Plant No. 1 and the San Jose Waste Pollution Control Plant do not need to be regulated by the RCRA or the state: “POTWs such as the Inland Empire and San Jose wastewater plants are effectively exempted from those regulations and are deemed to have a solid waste permit,” citing 40 C.F.R. §§ 264.1(e), 270.1(c)(1)(ii) (2012).⁵⁵ Plaintiffs explain, regarding 42 U.S.C. § 6905(a), that “[t]his exemption does not convert the wastewater sludge from a ‘solid waste’ to a non-solid waste under the Solid Waste Disposal Act. This exemption is a product of the overlapping regulatory structure for solid wastes—the EPA regulates

1986).” I.R.C. § 48(a)(5)(D) specifically includes as “qualified property” any equipment that is “an integral part of the qualified investment credit facility.” Defendant does not appear to challenge the integral nature of the gas conditioning equipment to a trash facility “which uses municipal solid waste to produce electricity.” The gas conditioning equipment is a necessary element for cleaning biogas produced from municipal solid waste, before it is converted to fuel, even if the power plant is not a fuel cell. At trial, Mr. Settle, from NREL, affirmed that, if the RP1 and SJ-1 facilities were to be viewed as part of a “trash facility,” gas conditioning equipment would be included, “because the gas conditioning equipment is an integral part of that particular facility.”

⁵⁵ The parties have stipulated that “[n]either Regional Plant No. 1 nor the RP1 Project has been regulated by the California Department of Resources Recycling and Recovery (‘CalRecycle’) as a permitted solid waste facility,” and that “[n]either WPCP nor the SJ-1 Project has been regulated by CalRecycle as a permitted solid waste facility.”

wastewater plants, including wastewater sludge, under the Clean Water Act” Plaintiffs add that, regardless, “[t]he inescapable fact is that wastewater sludge is ‘solid waste’ because the RCRA says it is and the EPA says it is.”

Defendant appears, incorrectly, to contend that simply because the IEUA Regional Plant No. 1 and San Jose Water Pollution Control Plant are publically owned treatment works, regulated by the Clean Water Act, the text of RCRA is not applicable. It is correct that at the start of RCRA, there is a clause that exempts RCRA from applying to entities regulated under other statutes, such as the Clean Water Act, also known as the Federal Water Pollution Control Act. Pursuant to 42 U.S.C. § 6905(a):

Nothing in this chapter [RCRA] shall be construed to apply to (or to authorize any State, interstate, or local authority to regulate) any activity or substance which is subject to the Federal Water Pollution Control Act [33 U.S.C. 1251 et seq.], the Safe Drinking Water Act [42 U.S.C. 300f et seq.], the Marine Protection, Research and Sanctuaries Act of 1972 [16 U.S.C. 1431 et seq., 1447 et seq., 33 U.S.C. 1401 et seq., 2801 et seq.], or the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.] except to the extent that such application (or regulation) is not inconsistent with the requirements of such Acts.

42 U.S.C. § 6905(a). This clause is an anti-duplication provision, the purpose of which is to prevent entities from being regulated by two different, overlapping and duplicative, environmental regulatory schemes. See Jones v. E.R. Snell Contractor, Inc., 333 F. Supp. 2d 1344, 1350 (N.D. Ga.) (Discussing 42 U.S.C. § 6945(a), the court stated: “In section 6905, Congress provided the EPA with guidelines for applying and integrating the [Resource Conservation and] Recovery Act with other legislation, including the Clean Water Act. In pertinent part, Congress stated that the Recovery Act regulations could not be inconsistent with the Clean Water Act, and should, to the maximum extent possible, avoid duplication with its provisions.”), aff’d, 120 F. App’x 786 (11th Cir. 2004), cert. denied, 544 U.S. 962 (2005). The point of an anti-duplication provision such as 42 U.S.C. § 6905(a) is to prevent the burdens of compliance with RCRA from applying to an entity that already is subject to the regulatory environment of the Clean Water Act. See id. As plaintiffs point out, one way this anti-duplication provision is made effective is through presumed permitting of publically owned treatment works regulated under the Clean Water Act. See 40 C.F.R. § 270.1 (2012) (“However, the owner and operator of a publicly owned treatment works receiving hazardous waste will be deemed to have a RCRA permit for that waste if they comply with the requirements of [40 C.F.R.] § 270.60(c) (permit-by-rule for POTWs).”).

The anti-duplication provision of RCRA, 42 U.S.C. § 6905(a), does not prevent other parts of the United States Code from referencing the text of RCRA for other purposes, such as in this case, using the definition of “solid waste” in RCRA for determining the Treasury grant at issue. Here, section 45(c)(6) of the Internal Revenue Code is referencing a provision of RCRA for its definition. See I.R.C. § 45(c)(6) (“The term ‘municipal solid waste’ has the meaning given the term “solid waste” under section

2(27) of the Solid Waste Disposal Act (42 U.S.C. 6903).”). Moreover, the RCRA anti-duplication provision, 42 U.S.C. § 6905(a), does not apply to this case. The provision states that: “Nothing in this chapter shall be construed to apply to (or to authorize any State, interstate, or local authority to regulate) any activity or substance which is subject to the Federal Water Pollution Control Act [Clean Water Act]” See 42 U.S.C. § 6905(a). This provision suggests that an “activity or substance” regulated under the Clean Water Act is not to be regulated under RCRA. See id. A Treasury grant pursuant to I.R.C. § 45(d)(7) is not an “activity or substance” regulated under the Clean Water Act.

Defendant also contends that the legislative history of Section 1603 indicates that “[t]rash facilities” under I.R.C. § 45(d)(7) must use a turbine to process the biogas created from the waste, not fuel cells. (emphasis in original). According to defendant, “Congress in enacting § 1603 contemplated the same type of ‘trash facilities’ using turbines to generate electricity since the inception of section 45(d)(7).” Defendant draws upon legislative history to come to its conclusion. Defendant states:

The legislative history of the section makes this clear. When § 45(d)(7) was first enacted into the Code as “trash combustion facility,” P.L. 108-357, § 710(b)(1), 118 Stat. 1418, 1552 (2004), the scope of “trash combustion facilities” contemplated by Congress was rather narrow: facilities that “burn municipal solid waste (garbage) to produce steam to drive a turbine for the production of electricity.” H. Rep. No. 108-755, at 511 (Conf. Rep.). Although the word “combustion” was eliminated in an amendment in 2008, the Emergency Economic Stabilization Act of 2008, Pub. L. 110-343, § 101(c)(2), 122 Stat. 3765, 3809 (2008), the change merely was intended to permit facilities to gasify municipal solid waste so that the facilities can “burn such gas as part of an electricity generation process.” H. Rep. No. 110-658, at 49; see Def. Ex. 2000, DX 1503, ¶ 7.3.1. Thus, the requirement of using a turbine to generate electricity arguably remained the same. In fact, in 2009 when Congress passed § 1603, it also passed a provision extending the tax credit for trash facilities. In the legislative history accompanying that latter provision, “trash combustion [sic] facilities” were explicitly described as facilities that “use municipal solid waste (garbage) to produce steam to drive a turbine for the production of electricity.” H. R. Rep. No. 116-16, at 613 (2009) (Conf. Rep.) (emphasis added). Thus, except for changing the word from “burn” to “use” to accommodate the 2008 amendment, Congress in enacting § 1603 contemplated the same type of “trash facilities” using turbines to generate electricity since the inception of section 45(d)(7).

(footnote omitted; emphasis in original). At trial, Mr. Markell, defendant’s expert witness, offered testimony in support of defendant’s argument. Mr. Markell stated:

It’s really based on my experience with working with waste-to-energy projects. A typical waste-to-energy project will burn municipal solid

waste or MSW to generate steam and go through a steam turbine to generate power that way.

So looking at a waste-to-energy project that way, RP1 and SJ-1 are not what I would consider waste-to-energy projects.

Defendant's reliance on legislative history, however, overlooks the plain language of the Internal Revenue Code. The relevant portion of I.R.C. § 45(d)(7) states:

Trash facilities

In the case of a facility (other than a facility described in paragraph (6)) which uses municipal solid waste to produce electricity, the term "qualified facility" means any facility owned by the taxpayer which is originally placed in service after the date of the enactment of this paragraph and the construction of which begins before January 1, 2015.

The definition in I.R.C. § 45(d)(7) does not reference a requirement to use a turbine to process the biogas created from the waste, rather than fuel cells. In addition, a review of the legislative history indicates that the changes defendant described above, for example, the removal of the word "combustion," and the changing of "burn" to "use," indicates Congressional intent as the statute has evolved to expand the types of facilities available for a grant under I.R.C. § 45(d)(7). Defendant's references to legislative history do not compel the court to disregard the plain language of I.R.C. § 45(d)(7).

Finally, defendant also raises two arguments for why, even if plaintiffs' facilities qualify as trash facilities under I.R.C. § 45(d)(7), plaintiffs still should not receive a grant under Section 1603(d)(1) that includes the value of the gas conditioning equipment. Defendant first argues that, because the RP1 and SJ-1 facilities also burn natural gas, and natural gas, allegedly, is not a qualifying fuel for a trash facility, plaintiffs' payments under Section 1603 would have to be pro-rated to account for how much of the electricity produced by their facilities came from anaerobic digester biogas versus the natural gas. Defendant states that "[a]s the Treasury Guidance explains, the 'eligible basis of a qualified facility does not include the portion of the cost of the facility that is attributable to a non-qualifying activity.'" Defendant, quoting an October 29, 2013 IEUA "Fuel Cell Update" in the record, calculates that plaintiffs' facilities only operated on anaerobic digester biogas "'68.9% of [the] time,'" for the alleged period of interest, and therefore, their pro-rated grant would be less than what plaintiffs have already received. (modification in original).

Plaintiffs respond that "[t]he fuel cell equipment qualifies under Code § 48(c)(1)(C), without reduction, regardless of whether it uses natural gas." In addition, plaintiffs note that "digester gas conditioning equipment cleans only qualifying digester gas from the wastewater treatment plants (i.e., a qualifying activity). Treasury's own guidance indicates that this type of equipment separately qualifies for the Section 1603

grant, without any reduction” Plaintiffs add that “[e]ven if Treasury had the authority to apply a ‘haircut,’ which it does not, its calculations are not correct,” because they refer to calculations of fuel cell usage just after startup. Plaintiffs argue that it is unfair to consider this snapshot period as indicative, considering that “[a]s the testimony in this case showed, the design of the RP1 Project was to operate on no less than 75 percent digester gas and the design of the SJ-1 Project was to operate on 100 percent digester gas,” but that defendant instead has looked at just the period of time in which the facilities were starting operation.

Defendant’s argument appears to rely primarily on the Treasury Guidance for the Section 1603 program, in the section under “**Eligible Basis**,” (emphasis in original), which states that “[t]he basis of property is determined in accordance with the general rules for determining the basis of property for federal income tax purposes.” The guidance document continues:

Limitation on eligible basis. The eligible basis of a qualified facility does not include the portion of the cost of the facility that is attributable to a nonqualifying activity⁵⁶. For example, for a biomass facility that burns fuel other than open-loop biomass or closed-loop biomass,⁵⁷ the eligible cost basis is the percentage of total eligible costs that is equal to the percentage of the electricity produced at the facility that is attributable to the open-loop biomass and closed-loop biomass. In the case of costs that relate to both a nonqualifying activity and a qualifying activity, the costs must be reasonably allocated between the nonqualifying and qualifying activities. For example, if combustion equipment burns both qualifying biomass and other fuel, the equipment’s eligible cost basis is limited to the percentage of its otherwise eligible cost corresponding to the percentage of the equipment’s electricity production that is attributable to the qualifying biomass. Similarly, the eligible basis of a qualified hydropower facility producing incremental hydropower includes the entire costs of the modification even though only a portion of the power produced from the modification is attributable to the modification.

Although plaintiffs are correct that gas conditioning equipment only works with anaerobic digester biogas, defendant also is correct to note that the cost basis for the entire RP1 or SJ-1 facility might have to be recalculated if a grant were to be awarded to

⁵⁶ “[N]onqualifying activity” appears to be a new term introduced in the Treasury Guidance, and is not reflected in the Internal Revenue Code at sections 45 or 48, or Section 1603. See generally Section 1603; I.R.C. §§ 45, 48.

⁵⁷ Open-loop and close-loop biomass facilities are defined in I.R.C. § 45(d)(2), (3). Biomass facilities are not the same as trash facilities. Biomass facilities relate to the production of electricity from “organic material from a plant which is planted exclusively for purposes of being used at a qualified facility to produce electricity,” or from wood or agricultural waste. See I.R.C. § 45(c)(2), (3).

plaintiffs as a “trash facility.” On the one hand, the Treasury Guidance appears to indicate that a nonqualifying activity may include the production of electricity from natural gas, since natural gas is not a qualified energy resource under I.R.C. § 45(c). The language of the Treasury Guidance indicates that this could affect the overall RP1 and SJ-1 cost basis:

For example, if combustion equipment burns both qualifying biomass and other fuel, the equipment’s eligible cost basis is limited to the percentage of its otherwise eligible cost corresponding to the percentage of the equipment’s electricity production that is attributable to the qualifying biomass.

The government’s reliance on the Treasury Guidance, however, may be limited because it refers to biomass facilities, not trash facilities or facilities that use municipal solid waste. In addition, the interplay between the Treasury Guidance and Treasury Frequently Asked Questions document is unclear. The Frequently Asked Questions document appears to address a similar question:

Question: Is the eligible cost basis of the conversion equipment reduced if the qualifying facility of which it is a part burns fuel other than fuel that the conversion facility produces from qualified energy resources?

Answer: No, not if all fuel produced by the conversion equipment is used by the qualifying facility in the production of electricity.

(emphasis in original). The Treasury’s answer to the question appears to indicate that as long as the conversion facility, such as an anaerobic digester, is used full-time in a qualifying manner, its cost basis might be considered in full, even if other parts of the qualifying facility partake in non-qualifying activities.

Returning to the language of Section 1603 for clarification, grants are available to:

(1) QUALIFIED FACILITIES.—Any qualified property (as defined in section 48(a)(5)(D) of the Internal Revenue Code of 1986) which is part of a qualified facility (within the meaning of section 45 of such Code) described in paragraph (1), (2), (3), (4), (6), (7), (9), or (11) of section 45(d) of such Code.

Section 1603(d)(1). Section 1603 does not address additional limitations on grant eligibility due to use of a facility for nonqualifying purposes. Section 45(a) of the Internal Revenue Code gives a general rule for I.R.C. § 45:

(a) General rule

For purposes of section 38, the renewable electricity production credit for any taxable year is an amount equal to the product of—

(1) 1.5 cents, multiplied by

(2) the kilowatt hours of electricity—

(A) produced by the taxpayer—

(i) from qualified energy resources, and

(ii) at a qualified facility during the 10-year period beginning on the date the facility was originally placed in service, and

(B) sold by the taxpayer to an unrelated person during the taxable year.

I.R.C. § 45(a) (emphasis in original). Defendant's reduction calculation is rooted in the term "qualified energy resources." Defendant states that, for the RP1 and SJ-1 projects, "their overall basis would then be reduced by the percentage that is attributable to electricity production that is not from a qualified source. See § 45(a)(2)(A)(i) (credit only for electricity from eligible sources)." The court notes, however, that the grant requirement under Section 1603(d)(1), and the definition of trash facility in I.R.C. § 45(d)(7), refer to qualified facilities described within I.R.C. § 45(d), not "qualified energy resources," which are described separately within I.R.C. § 45(c). If a facility is a qualified facility, there does not appear to be a basis in the statute, I.R.C. § 45, for giving only a partial grant to the facility owner because the same facility might also use natural gas or any other non-qualified energy resource. The court notes that the primary and intended use of the applicant's facility is considered when making the initial determination of whether or not the facility is a qualified facility under Section 1603. For example, regarding the determination of whether the anaerobic digesters were "integrated" within the RP1 and SJ-1 fuel cell facilities, a factor considered is how much the RP1 and SJ-1 facilities use the anaerobic digester biogas produced by the anaerobic digesters.

Finally, defendant also contends that, even if the RP1 and SJ-1 facilities are part of a trash facility under I.R.C. § 45(d)(7), plaintiffs would nonetheless be statutorily barred from receiving a reward because "they are not the first trash facilities to be placed in service at the sites. Both SJ-1 and RP1 replaced previous on-site electrical generation that used the same biogas." Defendant's argument is repeated below:

Here, if plaintiffs are correct that their projects, which take biogas from digesters, clean it, and produce electricity, qualify as trash facilities, then

they are not the first trash facilities to be placed in service at the sites. Both SJ-1 and RP1 replaced previous on-site electrical generation that used the same biogas. As a result, they are “new units” under § 45(d)(7). That creates a problem for plaintiffs’ claim, no matter when the prior facility was placed in service. If the original trash facilities, *i.e.*, the prior engine-generation setup, were placed in service prior to the enactment, as seems most likely, the projects fall within the “new units” under § 45(d)(7). Accordingly, the projects qualify “only to the extent of the increased amount of electricity produced at the facility by reason of such new unit.” § 45(d)(7). The projects, however, did not increase the electrical generation capacity at all. At RP1, the 2.4 MW fuel cell replaced previous reciprocating engines that also generated 2.4 MW of electricity. At SJ-1, the 1.4 MW fuel cell replaced prior generators that had a capacity of 5.2 MW. Because there is no evidence that additional electricity would be generated as a result of these new units, and, under the new unit rule of § 45(d)(7), the projects would not qualify as a trash facility.

If, instead, the original engines were placed in service after October 22, 2004, then the projects would not qualify because they do not fall within the definition, which does not seem to include new units on facilities that post-date the paragraph (presumably because they are simply replacing existing ones that already received a tax credit).

Not only does this bar their trash facility claim, but it demonstrates why they should not qualify in any event: RP1 and SJ-1 are more appropriately viewed as fuel cell power facilities that use pre-existing biogas to generate electricity than “trash facilities” that convert the waste to energy. The digesters have been digesting sludge and producing biogas for decades, and that (conditioned) biogas was used previously to produce electricity. Plaintiffs are not capturing energy from otherwise unutilized waste. They are just replacing prior energy generation equipment with a fuel cell. To the extent Congress wanted to subsidize that type of replacement of one type of prime mover with another, it is only through the tax credit and § 1603 payment for fuel cell power plants, not by claiming the entire project as a trash facility.

(internal citations omitted; footnote omitted).

Defendant in a footnote also refers to the legislative history of I.R.C. § 45(d)(7), stating:

Plaintiffs cannot circumvent the “new unit” rule by claiming that the projects themselves independently qualify as a trash facility within the meaning of section 45(d)(7) when they are only *units* of a pre-existing facility. The legislative history accompanying the new unit rule indicates that the new unit generally is electricity generation equipment that shares

“certain common equipment, such as trash handling equipment, with other pre-existing units at the same facility.”

(emphasis in original; citation omitted).

Section 45(d)(7) of the Internal Revenue Code states:

(7) Trash facilities

In the case of a facility (other than a facility described in paragraph (6)) which uses municipal solid waste to produce electricity, the term “qualified facility” means any facility owned by the taxpayer which is originally placed in service after the date of the enactment of this paragraph and the construction of which begins before January 1, 2015. Such term shall include a new unit placed in service in connection with a facility placed in service on or before the date of the enactment of this paragraph, but only to the extent of the increased amount of electricity produced at the facility by reason of such new unit.

Defendant notes that the record was not initially developed to provide evidence of when the IEUA Regional Plant No. 1 and the San Jose Waste Pollution Control Plant were put into service, and more factual discovery and development in the record would be necessary. Nonetheless, assuming that plaintiffs’ anaerobic digesters and prior reciprocating engines were in place prior to October 22, 2004, they would have been considered trash facilities pursuant to I.R.C. § 45(d)(7). Thus, the RP1 and SJ-1 fuel cell power plants could be considered “new units” of the broader trash facility. The record indicates that the reciprocating engines that operated at both the RP1 and SJ-1 sites beforehand had similar power outputs. Therefore, even if the RP1 and SJ-1 facilities could be considered “Trash facilities” pursuant to I.R.C. § 45(d)(7), their eligibility as “Qualified Facilities” under Section 1603(d)(1), might be limited to “the increased amount of electricity produced at the facility by reason of such new unit.”

CONCLUSION

For the reasons discussed above, the gas conditioning equipment located at the RP1 and SJ-1 fuel cell facilities are part of a “fuel cell power plant” pursuant to I.R.C. § 48(c)(1)(C), and, thus, are eligible for a Section 1603 grant as a “qualified fuel cell property” pursuant to Section 1603(d)(2). The RP1 and SJ-1 fuel cell facilities, integrated with the anaerobic digesters co-located at the same sites, also meet the definitional requirements to be considered as “**Trash facilities**” under I.R.C. § 45(d)(7), (emphasis in original), but the record before the court is not sufficiently developed on the trash facilities issue for the court to be able to determine plaintiffs’ grant entitlement under a “Trash Facility” qualification. As plaintiffs are eligible for the thirty percent Section 1603 grant on the cost basis that includes the gas conditioning equipment at the RP1 and SJ-1 sites, the court does not reach whether plaintiffs could have recovered the amount sought under their alternative trash facility argument.

IT IS SO ORDERED.

s/Marian Blank Horn
MARIAN BLANK HORN
Judge